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Directional Extreme Wind Speed Data for the Design of Buildings and Other Structures

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ABSTRACT

The purpose of this report is to provide largest yearly fastest-mile wind speed data corresponding to winds blowing from each octant at 37 airport stations in the United States. Four sets of data are presented. The first set consists of largest yearly fastest-mile wind speeds at 24 stations as extracted from original records. The second set consists of largest yearly fastest-mile wind speeds at 13 stations as extracted from Local Climatological Data (LCD) summaries. The third and fourth sets consist of the data from the first and second sets reduced to a height of 10 m above ground. The report also provides information on possible differences between extreme data extracted from original records on the one hand and from LCD summaries on the other hand. Procedures for estimating extreme wind effects that take into account the directional characteristics of the extreme wind climate and of the aerodynamic behavior of the structure are briefly reviewed, and it is noted that additional research on sampling errors in the estimation of extreme wind effects appears to be warranted.

Key words: aerodynamics; climatology; directionality; reliability; structural engineering; wind engineering; wind speeds.

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1. INTRODUCTION

It is widely recognized that, owing to both aerodynamic and climatological factors, wind direction can have an important effect on the design of wind-sensitive structures. For this reason, modern wind tunnel tests provide extensive information on the dependence of aerodynamic loads upon direction. However, in current design practice this information is in many instances not integrated in a consistent manner with data concerning the extreme wind climate. This can lead to the estimation of design wind loads that, depending upon the extreme wind climate and the aerodynamic properties of the structure, can differ significantly for any given mean recurrence interval from the actual loads.

In recent years various procedures for estimating design wind loads have been developed that take into account both aerodynamic and climatological directional effects. Procedures applicable to structures in hurricane-prone regions have been proposed by references 1 and 2. Procedures developed for structures in regions with well-behaved wind climates are described in references 3 to 6. The procedure of references 3 and 4 depends for the characterization of the extreme wind climate upon continuous wind velocity records (or similar types of records, e.g., wind velocities recorded at 1-hour or 3-hour intervals). The procedures of references 5 and 6 utilize records of largest yearly wind speeds for each of the eight (or sixteen) directions of the compass.

It has been shown in reference 7 that continuous velocity records may reflect predominantly the presence of weak winds, such as, for example, morning breezes, which do not belong to the same family of meteorological phenomena as the strong winds of interest in structural design. For this reason, the use of such records may lead to systematically incorrect inferences concerning effects of strong winds.

Records of largest yearly wind speeds provide a more dependable basis for such inferences. However, a major obstacle to the implementation of procedures that utilize such records is the absence of readily available directional extreme wind data. The main purpose of this report is to provide such data at a number of airport stations in the United States.

The report consists of four sections and four appendices. Following this introduction, section 2 includes a brief review of recent research results reported in references 2, 5, and 6 concerning wind directionality effects in well-behaved wind climates and in hurricane-prone regions. Section 3 discusses the differences between directional extreme wind speed data as obtained at various stations from the original records on the one hand, and from Local Climatological Data (LCD) summaries issued by the National Climatic Data Center on the other hand. Section 4 describes the procedure used in this report for reducing the wind speed data to a common elevation.

Appendix I includes directional extreme fastest-mile wind speed data obtained from the original records at 24 stations. Some of these data differ from those obtained from LCD summaries, for reasons explained in section 3. In those instances where such differences exist, the fastest-mile wind speed data obtained at 21 of these 24 stations from LCD summaries are also listed under the heading "Published Data." Appendix II includes directional extreme fastest-mile wind speed data at 13 stations, as obtained from LCD summaries only. The data listed in appendices I and II were recorded at a variety of elevations. For statistical analysis and structural design purposes it is necessary that the data be reduced to a common anemometer height. This is done, as shown in section 4, in appendices III and IV, which include extreme fastest-mile wind speed data reduced to a 10 m height for the stations listed in appendices I and II, respectively. Also included in appendices III and IV are sample statistics (sample mean, $\bar{v}$, sample standard deviation, $s(v)$, sample maximum, v_{max}, and sample minimum, v_{min}) of largest yearly fastest-mile speeds for winds blowing from each octant, and for largest yearly fastest-mile speeds for winds blowing from any direction. Such statistics are calculated for the entire period of record, as well as for the first and for the second half of the record. These three sets of statistics are presented in order to provide some insight into the dependence of the statistics upon the data sample, both in the case of winds blowing from each octant and in the case of winds blowing from any direction.

2. WIND DIRECTIONALITY EFFECTS ON CLADDING AND STRUCTURAL LOADS

In this section a brief review is presented of results reported in references 2, 5, and 6. These results are applicable to cladding and structural members not subjected to resonant or aeroelastic effects under the assumption that the only random dependence of the loading upon time is that associated with wind loads.

2.1 EXTREME WIND LOADS

Let the direction-dependent loading be defined by the expression

$$Q(\alpha_j, \theta_i) = \frac{1}{2} \rho E C_p(\alpha_j, \theta_i) v^2(\alpha_j) \tag{2.1.1}$$

where ρ = air density, E = exposure factor converting the square of speed $v(\alpha_j)$ recorded under standard micrometeorological conditions into the square of the mean speed at reference elevation over the building site, and $C_p(\alpha_j, \theta_i)$ = aerodynamic coefficient corresponding to wind direction, α_j, given that the angle of orientation of the building is θ_i. We assume for the time being that the building has a specified orientation, i.e., that the angle θ_i is fixed.

Let the largest wind speeds blowing from the directions α_j during a specified period be denoted by $v(\alpha_j)$. The largest wind load to which the member under consideration will be subjected during that period is:

$$Q(\theta_i) = \frac{1}{2} \rho E \max_j [C_p(\alpha_j, \theta_i) v^2(\alpha_j)] \tag{2.1.2}$$

2.2 WELL-BEHAVED WIND CLIMATES

Let now $v(\alpha_j)$ represent the set of largest yearly wind speeds corresponding to the directions α_j. $Q(\theta_i)$ is then the largest yearly wind load acting on the member to which Eq. 2.1.1 applies. In well-behaved wind climates, where sets of largest yearly wind speed data, $v(\alpha_j)$, are available for a sufficient number of consecutive years, largest yearly wind loads corresponding to these data can be calculated by Eq. 2.1.2. The requisite statistics of $Q(\theta_i)$ can be estimated from these calculated loads. The advantage of using this procedure is that it does not require any explicit assumptions concerning the joint probability distribution of wind speed and direction, for which no validated model is available to date.

In practice it is computationally convenient to estimate statistics of a variate $v_{eq}(\theta_i)$ which is proportional to $[Q(\theta_i)/\rho]^{1/2}$ and is referred to as the equivalent wind speed. The requisite information concerning $Q(\theta_i)$ can then be obtained from the statistics of $v_{eq}(\theta_i)$.

2.3 HURRICANE-PRONE REGIONS

In hurricane-prone regions the design loads are influenced by winds associated with both hurricanes (tropical cyclones) and non-hurricane storms. Let the cumulative distribution functions fitted to the hurricane and the non-hurricane equivalent wind speeds, $v_{H,eq}$ and $v_{NH,eq}$, be denoted by $F_H[v_{H,eq}(\theta_i) < v]$ and $F_{NH}[v_{NH,eq}(\theta_i) < v]$, respectively. The probability distribution of the equivalent wind speeds is obtained from the relation

$$F_{v_{eq}}[v_{eq}(\theta_i) < v] = F_H[v_{H,eq}(\theta_i) < v]\ F_{NH}[v_{NH,eq}(\theta_i) < v] \qquad (2.3.1)$$

The reference period for the distributions of Eq. 2.3.1 is one year. However, the sample of hurricane equivalent wind speeds to which the distribution F_H is fitted are not yearly values. Rather, they are associated with hurricanes whose irregular occurrence is characterized by the mean rate of occurrence, ν. The approach used in this case is the following [2]. A large number, m, of hurricanes is generated by Monte Carlo simulation on the basis of climatological data pertaining to hurricane storms. The corresponding largest speeds, $v(\alpha_j)$, corresponding to the directions, α_j, are calculated for each of these hurricanes. These speeds are then used in Eq. 2.1.2. A number of largest hurricane-induced loads, $Q_k(\theta_i)$, is thus obtained [$k = 1, 2, \ldots m$, and $\theta_1(\theta_i) < \theta_2(\theta_i) < \ldots \theta_m(\theta_i)$]. It can be shown [8] that the mean recurrence interval of the load, $Q_k(\theta_i)$, is

$$N = \frac{1}{1 - e^{-\nu(1 - \frac{k}{m-1})}} \qquad (2.3.2)$$

The probability distribution and various statistics of $v_{H,eq}$ can then be obtained as needed. Hurricane wind speed data, $v(\alpha_j)$, for m = 1,000 hurricanes generated as shown in reference 8 are recorded on tape for 56 stations along the Gulf and Atlantic coasts [9].

The sample of non-hurricane wind speeds from which the distribution of the equivalent speeds, $v_{NH,eq}$, is estimated consists of the set of largest yearly non-hurricane wind speeds recorded for each octant over a sufficient number of consecutive years. In practice, data recorded at a station in a hurricane-prone region also include hurricane wind speeds--if hurricanes happen to have occurred at that station during the period of record. To estimate the distribution of $v_{NH,eq}$ the set of largest yearly wind speed data at that station must therefore, be corrected, i.e., the wind speeds associated with tropical cyclones must be excluded from the set (e.g., using information on the occurrence dates of tropical cyclones available in references 10 or 11) and replaced by largest yearly non-hurricane wind speeds (e.g., obtained from Local Climatological Data sheets). Note that appendices I through IV include data sets at the following stations in hurricane-prone regions: Corpus Christi, Texas; Jacksonville, Florida; and Cape Hatteras, North Carolina. Wind speeds associated with tropical cyclones, if any, were not replaced in these sets by largest yearly nonhurricane wind speeds.

3. DIFFERENCES BETWEEN EXTREME DATA FROM ORIGINAL RECORDS AND FROM LCD SUMMARIES

Local Climatological Data (LCD) monthly summaries include fastest-mile wind speed data* and the corresponding direction. On the date of this fastest-mile, another (lower and unpublished) value could have occurred from a different direction and actually exceeded the published annual extreme for that different direction. Since that value would not appear in the LCD summaries, it is referred to as a "hidden value".

The 24 stations for which data are included in appendix I have been corrected for possible "hidden values" by examining the original records. "Hidden values" discovered as a result of this search are indicated by an asterisk adjacent to the date of occurrence of the wind speed and the corresponding published values are listed, for 21 of the 24 stations of appendix I.

A comparison of the "hidden values" with the corresponding published values shows that in most cases the wind load statistics would be only modestly affected if the published values were used in the calculations. The reader can verify that in the case of such stations as, e.g., Great Falls, Montana; Portland, Oregon; and Tucson, Arizona, using the "hidden values" instead of the published values would result in differences in the design wind loads of the order of 1 percent. At some stations such differences are somewhat larger. Examples of relatively large differences, Δ, between "hidden" and published values are shown in table 1.

Table 1. Examples of "Hidden" Versus Published Values of Extreme Wind Speeds

Station	Year	Direction	"Hidden" Value (mph) [m/sec]	Published Value (mph) [m/sec]	Δ %
Abilene, TX	1960	SW	48 [21]	36 [16]	25
Bismarck, ND	1953	N	51 [23]	43 [19]	16
Buffalo, NY	1952	W	51 [23]	37 [17]	27
Omaha, NB	1950	W	61 [27]	47 [21]	23
Omaha, NB	1953	S	57 [25]	42 [19]	26
Omaha, NB	1957	SE	53 [24]	39 [17]	26
Tulsa, OK	1950	S	52 [23]	43 [19]	17

---

* The fastest-mile wind speed is the speed averaged over an interval equal to the time required for the passage over the anemometer of a volume of air with a horizontal length of one mile.

However, even at these stations the effect of such differences is small from a structural design viewpoint. This is the case because differences such as those listed in table 1 occur only for a small number of observations so that their effect upon the wind load statistics is strongly mitigated. The data of appendix I thus suggest that the use of extreme yearly directional wind speed data extracted from monthly Local Climatological Data summaries is acceptable not only for preliminary design purposes but, in most cases, for final designs as well.

4. REDUCTION OF WIND SPEED DATA TO A COMMON ELEVATION

To ensure the micrometeorological homogeneity of the data at any given station, it is necessary to reduce all the wind speeds recorded at that station to a common elevation. The elevation chosen for this purpose is 10 m above ground.

The mean wind profile near the ground in homogeneous terrain is given by the well-known logarithmic law, which may be written in the form:

$$\overline{v(z)} = \frac{\ln \frac{z}{z_o}}{\ln \frac{10}{z_o}} \overline{v(10)} \qquad (4.1)$$

where z = height above ground and z_o = roughness length, both expressed in meters. In open terrain, z_o may vary from, say, 0.03 m to 0.10 m. In this report the reduction of the data to a height of 10 m is based on the assumption $z_o = 0.05$ m. It can be verified that the errors inherent in the assumption $z_o = 0.05$ m -- if in fact the values $z_o = 0.03$ m or $z_o = 0.10$ m were correct--are small (of the order of 1 percent or 2 percent).

An approximation to Eq. 4.1 is given by the power law

$$\overline{v(z)} = \left(\frac{z}{10}\right)^{\alpha} \overline{v(10)} \qquad (4.2)$$

where, for open terrain conditions, it is generally assumed that $\alpha = 1/7$. It is noted that Eq. 4.1, and therefore its approximate equivalent given by Eq. 4.2, is valid for mean wind speeds averaged over a relatively long time interval, e.g., one hour. The question thus arises of expressing the variation with height of the fastest-mile wind speed, which is averaged over a relatively short time (30 to 90s or so).

To obtain an approximate expression for the fastest-mile wind profile, it may be assumed, approximately,

$$\frac{V_{pk} - V_{fm}}{V_{pk} - \bar{v}} \simeq \frac{1}{2} \qquad (4.3)$$

where V_{pk} = peak wind speed, V_{fm} = fastest-mile speed, and $\bar{v}$ = hourly mean speed (see, e.g., reference 13, p. 62). The expression for V_{pk} can, in open terrain, be written as

$$V_{pk}(z) \simeq \overline{v(z)} + 3\, \overline{v'^2}^{1/2} \qquad (4.4)$$

where $\overline{v'^2}^{1/2}$ = r.m.s of longitudinal velocity fluctuations, and

$$\overline{v'^2}^{1/2} \approx \frac{\bar{v}(10)}{\ln \frac{10}{z_o}} \tag{4.5}$$

where z_o is expressed in meters (see reference 13, pp. 45 and 54).

It can be verified by using Eqs. 4.1, 4.3, 4.4 and 4.5 that, within the anemometer elevation range of interest in this report, it is possible to write approximately

$$\frac{V_{fm}(10)}{V_{fm}(z)} \approx \frac{\bar{v}(10)}{\bar{v}(z)} \left(1 + \frac{z-10}{10} \; 0.02\right) \tag{4.6}$$

where z is expressed in meters. The errors inherent in Eq. 4.6 are of the order of -1 to 3 percent, the higher errors being on the conservative side (i.e., yielding slightly higher fastest-mile values at 10 m above ground than would be obtained by a more "exact" expression). Eq. 4.6, also used in reference 14, has been employed in this report to obtain the corrected speeds at 10 m above ground.

Note that Eq. 4.6 is based on the assumption that the atmospheric stratification is neutral. As shown in reference 15, this assumption is acceptable for wind speeds of the order of 20 mph (8.9 m/sec) or more at 10 m above ground. The use of Eq. 4.6 for lower speeds entails errors which may become significant if the speeds are of the order of 10 mph (4.5 m/sec) at 10 m above ground.

Since these errors affect only the lower wind speeds, which generally do not control the structural design, their practical effect is not significant. For this reason, no corrections for these errors have been attempted in this report.

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APPENDIX I

LARGEST YEARLY FASTEST-MILE WIND SPEEDS EXTRACTED FROM ORIGINAL RECORDS (IN MILES PER HOUR).

Notes:

1. For all stations listed in this appendix the data have been extracted from the original records. These data may in certain instances differ from data published in Local Climatological Data (LCD) summaries. This is the case because the LCD data consist of the daily fastest mile and its associated direction; on the date of the fastest mile another (lower and unpublished) value could occur from a different direction and actually exceed the annual extreme for this direction published in the LCD's. Dates when such "hidden" values were noted are indicated by an asterisk, and the corresponding data published in LCD summaries are listed at the end of the data set for all stations except Huron, Sheridan, and Toledo.

2. Dates of occurrence of the wind speeds, and anemometer heights for each station are also included in this appendix.

Tucson, Arizona (1950-1979)

Anemometer Height	Begin Date	End Date
33'	---	10/14/58
23'	10/15/58	7/31/67
20'	8/ 1/67	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	40	9/3	51	7/1	38	11/10	35	6/20	46	9/7	41	3/25	46	8/11	25	4/9
1951	39	7/15	37	7/23	55	11/17	38	7/30	35	12/19	32	5/31	34	1/12	24	3/18
1952	27	9/23	20	8/15	59	2/26	46	4/18	42	8/8	35	1/13	32	7/9	40	11/9
1953	20	6/29	18	8/17	43	7/11	34	7/26	36	4/21	32	2/8	33	12/1	42	4/28
1954	43	9/1	7	7/1*	37	7/4	41	7/20	44	7/10	33	8/3	32	9/24	26	2/14
1955	31	2/6	44	8/30	39	7/21	42	8/3	35	7/14	36	4/22	31	3/20	44	8/10
1956	26	6/7	31	7/25	35	7/23	37	8/12	28	7/11	35	7/12	36	3/6	34	3/6*
1957	22	8/15	18	7/28	38	10/26	42	7/4	31	8/16	30	8/29	35	4/1	40	8/3
1958	20	7/25	28	9/9	44	8/31	35	7/23	35	6/28	30	4/22	35	7/1	27	6/27
1959	26	4/7	46	7/26	43	7/23	49	7/18	54	7/11	38	2/9	45	7/21	42	12/13
1960	31	3/23	36	7/18	29	8/20	54	9/30	48	6/19	34	12/3	49	2/2	44	2/9
1961	34	6/17	30	7/14	54	8/8	50	6/15	32	2/16	40	5/3	34	4/10	33	2/23
1962	25	9/19	33	7/31	40	1/10	40	7/20	36	1/21	33	3/10	54	7/29	30	9/6
1963	23	8/8	34	7/30	34	11/29	42	8/15	36	7/9	35	3/15	52	11/7	29	7/27
1964	19	7/30	34	6/24	39	10/20	35	10/19	54	7/24	38	4/28	31	8/26	29	2/2
1965	17	5/17	42	5/16	38	8/8	54	7/8	41	7/21	39	2/6	47	8/30	34	2/23
1966	20	4/14*	36	8/3	40	7/15	47	8/8	36	12/24*	42	4/18	27	2/26	40	8/12
1967	29	12/9	38	7/19	38	8/2	37	9/5	38	12/13	37	3/20	40	7/31	32	4/29
1968	24	6/13	23	7/30	50	7/18	33	8/19	31	12/20	30	8/10	29	3/10	24	2/22
1969	26	9/3	54	8/7	38	8/5	35	6/5	36	8/26	34	3/13	42	2/22	26	4/26
1970	27	8/20	47	7/20	35	2/20	42	6/5	34	6/28	34	3/10	59	7/19	31	8/11
1971	34	7/28	34	8/9	44	7/21	71	7/16	38	7/15	36	3/13	42	9/18	31	8/11
1972	47	9/1	27	5/3	42	8/9	45	7/28	32	6/2	42	7/14	45	6/21	35	7/7
1973	25	3/22	27	8/18	26	4/5	36	1/29	36	2/11	38	7/11	32	4/18	34	4/7
1974	37	8/23	38	7/27	43	7/1	38	7/26	29	1/1*	37	1/1	37	4/2	35	1/20
1975	33	7/12	33	7/26	40	7/25	34	9/22	45	11/28	37	5/20	36	2/21	45	11/29
1976	29	9/1	34	7/5	29	9/9	36	4/14	29	7/10	36	3/3	38	3/29	30	3/12

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	26	6/2	43	7/31	40	8/1	42	12/31	33	8/15	35	7/10	38	3/10	34	4/15
1978	25	2/19	35	8/8	27	7/10	38	7/8	40	8/1	35	11/11	31	2/13	37	8/7
1979	28	9/14	25	9/13	30	9/15	35	2/25	31	8/16	31	8/15	38	4/10	28	2/23

(*) Published Values

1954	NE None
1956	NW 32
1966	N None, S 33
1974	S 27

Sacramento, California (1950-1979)

Anemometer Height	Begin Date	End Date
77'	---	5/11/56
69'	5/12/56	4/30/60
21'	5/1/60	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	39	1/28	19	11/3	17	12/11	68	10/26	50	1/27	47	6/24	28	6/6	27	4/28*
1951	30	1/30	29	5/13	20	11/21	53	12/3*	62	12/3	49	12/1	29	12/5	28	10/4
1952	31	11/23	4	10/3	20	9/10	70	12/7	66	3/14	32	5/7	34	2/11	35	4/19
1953	53	10/21	34	5/4	20	1/5	70	11/13	49	3/19	32	6/18	36	4/7	37	12/27
1954	33	10/24	12	1/11	20	3/16	60	1/17	44	1/23	38	8/19	29	3/10	36	10/23
1955	36	3/15	34	3/15*	14	2/16	59	12/19	43	1/17	45	4/25	39	9/17	43	2/18
1956	38	11/12	23	9/18	29	10/30	38	1/26	52	1/25	42	4/24	30	10/23	36	2/16
1957	29	4/6	9	4/27	17	4/18	36	2/23	35	5/18	42	1/13	26	3/29	40	11/21
1958	29	10/20	11	1/6	16	12/1	42	2/24	38	3/31	33	9/22	25	3/5	35	2/28
1959	38	10/29	38	10/30	36	10/31	51	2/15	32	6/8	56	1/5	37	2/17	33	3/15
1960	31	2/23	17	6/15	18	2/5	40	2/1	36	1/21	31	5/20	40	2/8	36	3/16
1961	13	11/5	26	4/10	20	11/29	22	3/26	32	4/21	35	4/12	38	10/27	40	10/7
1962	13	1/10	5	2/2	33	3/5	34	2/9	34	1/19	42	10/12	31	4/24	32	10/16
1963	22	11/21	11	11/7	25	2/9	33	3/16	34	11/5	29	6/9	34	3/22	34	1/11
1964	32	4/3	22	2/15	7	2/15*	32	1/20	30	12/26	37	4/22	23	12/27	36	3/18
1965	35	9/17	7	2/6*	7	1/2*	34	1/2	29	11/17	32	1/6	28	1/24	42	9/16
1966	34	10/13	17	10/12	7	3/11	33	11/19	26	12/5	36	4/17	23	5/3	29	4/22
1967	32	12/14	33	12/13	12	11/14	58	1/24	34	1/24*	32	3/9	31	3/16	40	12/12
1968	38	6/29	18	6/6	6	2/4	30	1/29	17	10/29	32	3/16	29	9/13	25	3/26
1969	33	10/3	29	10/10	12	9/7	35	2/24	26	1/17	27	1/20	32	1/25	19	1/27
1970	34	3/17	10	1/7	7	1/1	23	12/20	33	11/27	35	1/23	29	9/12	23	2/17
1971	36	1/2	20	10/16	7	7/5	29	12/12	28	3/12	29	4/23	31	4/16	33	5/21
1972	34	4/18	9	2/4	8	2/25	26	11/13	23	7/18	32	4/11	29	3/22	37	1/3
1973	29	4/7	9	2/2	7	12/20	31	1/16	25	11/11	31	12/29	28	10/22	26	3/28
1974	42	2/5	6	1/4*	14	12/3*	29	12/3	27	3/1	29	4/8	26	7/7	25	6/6
1975	43	3/25	11	4/8	7	11/19	34	1/31	25	2/3	25	2/4	25	9/8	37	11/17
1976	29	12/9	13	2/5*	10	12/29	25	3/2	25	6/7	27	2/3	10	12/14	34	4/15

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	32	3/27	14	3/30	9	2/5	30	1/2	26	12/24*	26	3/23	23	5/5	32	3/3
1978	24	4/8	7	1/31	11	3/8	38	2/7	22	4/1	29	2/5	17	8/20	32	5/5
1979	22	10/28	13	1/3	9	11/12	36	3/27	18	5/3	26	6/16	10	5/1	30	6/7

(*) Published Values

1950	NW 26
1951	SE 44
1955	NE 30
1964	E None
1965	E None
1967	S 31
1974	NE None, E None
1976	NE None
1977	S 23

Denver, Colorado (1951-1979)

Anemometer Height	Begin Date	End Date
40'	---	7/7/60
20'	7/8/60	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1951	37	4/21	43	12/19	39	1/22	33	8/6	43	7/20	34	12/18	34	6/17	44	2/17
1952	37	4/12	38	2/28	28	5/8	43	9/12	32	7/19	37	11/15	38	3/12*	53	3/12
1953	39	7/9	51	12/10	26	5/22	35	5/28	42	5/21	34	6/2*	39	9/27	49	2/15
1954	45	2/19	45	3/12	32	5/27	36	4/11	35	4/19	33	6/26	34	5/12	45	3/18
1955	49	3/31	40	11/14	31	11/27*	38	5/15	41	4/27	27	5/24	35	12/16	47	4/19
1956	36	7/30	38	3/2	24	7/21	44	7/4	47	6/15	40	8/21	49	3/27	36	5/10
1957	42	3/23	34	8/3	25	12/11	52	4/21	39	4/21*	29	6/30	41	12/7	40	2/2
1958	35	5/25	38	11/7	25	12/8	42	4/7	38	4/7	34	5/29	37	12/19	45	10/20
1959	36	7/16	34	10/23	27	6/18	30	9/22	40	6/12	43	7/6	35	4/2	45	11/23
1960	33	5/5	27	2/22	32	5/4	32	5/22	33	4/11	31	8/4	45	4/16*	56	4/16
1961	37	4/11	33	4/11*	28	3/2	33	7/10	35	7/30	36	2/12	49	12/21	43	12/21*
1962	36	5/17	38	3/28	23	7/8	33	7/20	33	5/31	42	8/8	48	4/7	41	4/7*
1963	41	4/2	29	2/24	32	5/18	42	6/13	35	6/13*	47	4/15	43	2/1	39	5/30
1964	39	5/11	35	10/1	31	10/1*	34	5/16	32	5/24	43	5/5	40	12/23	35	1/24
1965	30	5/2	31	2/22	25	5/22	42	5/23	36	7/25*	56	7/25	39	1/27	40	7/2
1966	37	3/22	42	4/21	34	7/13	29	4/23	33	8/7	32	3/16	32	6/26	45	4/2
1967	31	6/28	35	3/14	29	3/24	36	4/12	38	3/29	40	4/29	42	4/30	42	12/6
1968	34	4/3	34	10/15	25	7/17	29	6/4	29	6/14	36	3/20	39	12/12	38	2/24
1969	40	6/10	29	6/10*	21	6/8	37	4/23	29	4/2	46	1/8	39	7/14	42	9/4
1970	37	6/11	40	3/24	20	5/13	26	7/22	27	4/13	37	4/14	36	11/30	40	2/3
1971	41	7/27	35	2/11	29	5/29*	47	4/18	42	6/30	37	6/10	33	12/20	38	11/2
1972	32	3/17	37	2/9	22	5/9	29	5/25	36	5/19	42	1/11	42	1/9	38	4/6
1973	43	7/24	34	10/29	26	6/10	31	7/12	34	7/7	33	8/21	32	5/9	49	12/12
1974	38	6/17	38	4/21	28	6/23	30	5/29	34	5/19	35	4/19	34	7/11	43	6/13
1975	42	1/18	43	7/5	23	11/29	28	9/2	37	3/25	34	6/25	43	1/20	45	12/27
1976	53	1/30	34	3/25	26	7/31	30	6/3	41	4/25	38	4/13	34	6/14	50	3/19
1977	47	3/11	38	3/10	24	4/14	29	9/22	38	4/10	37	5/18	41	12/7	45	9/23

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1978	42	8/1	38	2/20	30	5/16*	54	5/16	41	4/4	40	8/14	41	4/17	39	8/6
1979	34	9/13	34	6/29	23	6/17	35	7/3	28	6/30	34	8/8	40	12/5	30	12/15

(*) Published Values

1952	W 34
1953	SW 32
1955	E 29
1957	S 36
1960	W 43
1961	NE 29, NW 42
1962	NW 37
1963	S 29
1964	E 29
1965	S 29
1969	NE 26
1971	E 26
1978	E 25

Jacksonville, Florida (1950-1979)

Anemometer Height	Begin Date	End Date
54'	---	2/ 5/50
63'	2/ 6/50	1/18/71
21'	1/19/71	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	48	6/26	52	9/6	72	10/18	38	7/11	60	11/24	49	7/1	36	3/13	28	3/21
1951	32	1/22	42	10/2	28	4/21	34	9/2	41	4/16	39	4/16*	38	7/28	30	5/25
1952	56	10/20	40	7/2	33	6/30	46	10/21	39	8/11	39	6/13	41	6/19	42	7/24
1953	45	6/14	44	10/3	42	11/24	32	1/9	46	4/12	52	2/12	32	2/14	30	3/29
1954	35	8/29	35	8/24	37	7/26	27	2/20	46	9/11	35	1/22	44	6/10	32	9/10
1955	32	6/15	46	5/15	36	8/24	31	4/13	31	5/21	36	6/10	42	2/11	32	1/13
1956	37	8/15	37	10/11	38	10/16	44	6/5	49	6/26	35	9/25	33	4/11	36	3/16
1957	31	2/20	35	8/17	36	4/16	40	4/1	46	9/9	27	6/9	34	3/8	28	12/11
1958	28	10/2	39	5/29	31	9/12	32	9/14	29	1/21	33	2/27	42	2/1	32	4/16
1959	34	11/18	36	2/27	27	5/27	32	8/15	38	12/12	37	2/4	34	1/16	29	1/22
1960	35	7/3	46	9/11	41	9/24	30	6/16	33	10/6	41	2/13	39	6/3	34	7/15
1961	41	5/23	35	3/17	34	8/12	39	3/18	33	5/1	48	4/12	44	3/9	32	1/20
1962	35	8/1	42	11/30	54	6/14	39	7/21	28	7/31	42	3/21	40	4/12	36	3/31
1963	62	12/31	52	2/3	45	8/1	40	7/7	28	3/11	31	1/20	50	6/11	52	6/12
1964	82	9/9	48	6/6	78	9/10	45	9/11	48	9/12	41	4/27	43	3/3	38	1/20
1965	36	10/18	45	8/15	57	9/8	36	9/16*	39	6/8	42	7/16	48	2/25	45	4/19
1966	30	11/20	40	2/23	48	6/9	36	6/10	37	2/28	39	2/13	37	7/30	35	1/27
1967	28	4/11	76	6/30	35	2/31	29	7/22	30	8/8	39	5/7	34	7/14	47	4/24
1968	52	6/6	41	6/4	32	5/8	39	10/19	33	10/19*	46	7/17	34	3/1	32	12/15
1969	58	6/5	52	8/6	31	7/20	28	8/3	35	12/25	37	12/10	35	3/7	40	2/3
1970	35	7/17	35	10/17	39	7/8	44	2/1	39	7/11	34	5/25	37	2/3	36	7/3
1971	24	4/3	33	12/22	22	9/5	35	11/29	28	7/25	44	3/3	34	8/23	47	7/1
1972	25	1/30	30	10/19	39	6/19	32	6/18	31	6/30*	38	3/28	31	6/21	44	8/6
1973	27	6/25	43	2/9	41	4/3	27	5/8	26	4/7	35	4/27	48	4/25	34	5/25
1974	25	3/25	35	6/3	24	8/5	44	7/30	34	8/4	34	6/2	34	6/10	34	7/18
1975	62	5/27	27	1/2	24	6/21	27	8/12	27	10/17	54	6/16	35	6/16*	34	3/18
1976	26	8/12	29	11/2	20	12/25	27	7/7	29	7/17	40	7/6	42	3/16	42	9/3

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	26	4/5	26	7/22	22	8/28	26	9/3	21	5/25	31	1/28	33	9/8	28	2/20
1978	25	9/5	25	2/8	19	6/17	24	12/29	29	7/27	39	1/25	34	5/1	38	4/18
1979	32	9/4	34	8/5	25	4/25	29	7/24	27	3/23	31	1/21	32	1/24	32	12/24

(*) Published Values

1965	SE	33
1968	S	31
1972	S	26
1975	W	33

Boise, Idaho (1950-1979)

Anemometer Height	Begin Date	End Date
49'	---	10/8 /51
56'	10/ 9/51	7/16/54
58'	7/17/54	8/ 4/58
20'	8/ 5/58	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	27	8/9	26	8/11	24	11/20	56	10/26	24	2/3	43	8/4	50	10/5	56	12/30
1951	30	7/10	24	8/1	17	2/28	42	5/3	56	7/24	40	8/4	50	3/29	38	4/20
1952	20	8/4	18	7/12	25	12/9	49	12/6	29	4/2	43	12/7	47	5/19	48	8/13
1953	26	4/10	5	11/21*	22	11/21	43	8/2	42	5/7	35	1/25	49	2/3	57	11/23
1954	19	4/18	10	7/14*	18	1/27	38	4/8	40	6/30	45	1/17	56	2/17	50	10/23
1955	29	4/10	33	7/21	17	5/16	45	5/11	43	8/7	42	4/25	42	3/2	45	6/23
1956	36	8/6	9	8/6*	32	8/14	45	10/30	38	9/7	36	4/21	47	5/26	43	9/27
1957	27	6/16	13	11/30	25	5/28	34	1/20	50	12/23	30	7/26	52	3/9	45	4/24
1958	43	7/29	17	5/22	49	4/1	47	7/16	39	2/25	38	10/19	49	3/31	32	6/27
1959	13	4/23	15	9/22	27	1/5	38	1/10	32	1/9	31	9/14	27	10/6	38	4/6
1960	29	4/15	12	11/12*	30	11/23	50	9/3	34	2/1	39	9/12	29	10/26	28	3/15
1961	17	7/18	26	6/2	29	5/26	31	12/17	29	7/5	38	12/20	30	9/1	30	10/28
1962	17	7/6	22	8/16	34	5/3	29	6/19	26	8/21	38	6/18	34	4/19	30	4/20
1963	22	3/18	17	9/10	26	12/8	56	8/9	17	7/14	38	11/6	33	4/14	32	3/1
1964	17	5/3	19	5/12	28	10/29	36	12/19	29	5/16	40	12/20	28	12/27	31	7/29
1965	13	3/21	17	7/1	25	1/23	35	1/3	27	8/1	31	11/24	31	2/27	36	3/16
1966	17	2/14	9	11/19*	25	11/19	32	1/2	22	2/4	45	11/16	32	3/21	34	6/10
1967	26	5/17	23	6/17	32	1/24	33	6/1	32	5/9	29	3/10	34	6/21	30	2/10
1968	24	4/12	24	8/9	23	6/5	33	8/20	40	7/9	26	11/24	23	8/14	42	7/19
1969	23	6/8	30	6/7	25	12/11	30	2/24	30	6/5	41	1/26	34	3/22	34	3/23
1970	14	8/17	16	7/16	31	12/15	38	12/3	34	8/31	42	12/2	40	5/22	45	6/26
1971	24	5/5	31	7/19	29	1/15	37	5/26	24	8/5	34	7/21	35	3/26	44	3/30
1972	10	12/30	13	8/21	23	3/1	42	5/20	37	2/22	37	8/9	37	3/22	40	7/6
1973	21	9/14	9	9/18*	24	11/25	47	6/22	42	4/13	38	10/23	29	7/20	42	3/10
1974	17	7/9	8	7/9*	30	4/18	38	2/21	34	7/18	50	2/26	28	6/25	37	3/19
1975	14	3/10	22	9/13	28	11/9	42	6/24	40	11/10	40	7/21	25	6/8	42	7/29
1976	19	10/25	31	8/2	29	1/11	38	9/5	26	8/3	37	6/8	33	1/5	46	3/22

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	17	9/29	14	3/30	23	12/13	28	6/17	27	9/18	36	2/21	37	12/15	42	3/27
1978	13	8/31	24	7/8	23	7/3	32	4/26	17	10/19	34	7/15	29	4/1	42	6/24
1979	29	12/10	21	8/21	17	3/19	33	12/24	25	12/2	28	6/21	31	5/5	40	10/19

(*) Published Values

1953	NE	None
1954	NE	None
1956	NE	None
1960	NE	None
1966	NE	None
1973	NE	None
1974	NE	None

Louisville, Kentucky (1950-1979)

Anemometer Height	Begin Date	End Date
58'	---	9/18/50
71'	9/19/50	5/6/60
20'	5/7/60	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	30	12/26	25	5/17	17	10/18	34	3/7	50	1/3	54	3/28	46	3/1	42	4/5
1951	30	8/8	28	3/10	29	1/13	46	6/2	56	11/13	57	5/22	44	5/22*	37	8/9
1952	34	6/12	23	9/11	29	2/13	60	11/25	45	3/10	57	2/8	57	6/20	43	3/13*
1953	40	7/5	30	6/24	24	1/23	47	11/20	47	3/3	61	12/4	57	4/16	52	6/10
1954	34	12/5	27	12/6	25	8/8	34	10/14	56	2/20	57	2/25	38	6/16	57	9/19
1955	26	6/23	45	7/28	34	7/3	41	7/9	56	11/16	52	3/22	33	1/26	34	9/29
1956	37	6/24	26	5/24	20	1/1	34	2/8	49	3/1	50	3/29	59	2/23	52	8/13
1957	30	6/8	28	8/11	26	3/24	43	4/4	47	4/8	41	4/5	58	6/11	42	5/21*
1958	24	9/26	29	3/8	18	3/24	56	4/5	38	6/25	35	2/27	34	4/24	37	8/11
1959	28	4/12	22	7/3	25	7/26	42	1/21	37	8/16	43	3/15	44	5/10	32	2/18
1960	26	1/29	22	3/2	32	6/23	34	4/21	47	2/10	39	3/30	34	2/19	34	5/24
1961	25	1/19	21	8/29	17	3/17	29	5/6	34	11/3	33	3/8	43	4/25	35	2/25
1962	42	4/30	24	5/10	18	3/21	26	8/7	35	5/29	30	5/16	39	1/8	30	4/19
1963	43	6/10	20	9/14	29	8/28	25	3/11	35	3/25	28	4/19	40	6/13	36	4/21
1964	40	2/7	24	7/29	27	3/9	22	7/19	47	11/28	35	3/4	44	4/14	31	11/20
1965	31	9/15	26	7/24	19	9/12	13	3/28	31	2/10	35	12/24	38	11/26	31	11/27
1966	30	9/13	22	12/23	33	7/10	26	4/19	27	3/2	28	11/8	31	3/19	60	7/6
1967	40	3/17	27	10/8	17	3/26	34	10/24	31	1/6	32	4/14	27	12/28	57	2/15
1968	33	8/7	21	7/13	17	8/29	18	5/6	38	12/27	50	11/28	33	4/23	38	12/23*
1969	28	2/8	20	4/6	25	3/24	35	3/23	28	4/9	34	1/6	38	5/10	40	6/22
1970	27	2/25	25	3/12	24	8/19	35	10/9	34	4/19	38	4/2	35	4/20	35	5/25
1971	30	5/6	27	6/14	18	2/21	36	3/18	30	3/14	34	12/30	55	7/13	38	7/13*
1972	29	4/7	28	8/19	17	4/27	22	3/15	30	12/30	45	1/24	34	4/13	28	4/4
1973	29	7/3	26	7/21	23	5/27	30	4/20	36	6/4	45	12/26	38	11/25	29	1/28
1974	25	3/23	26	6/23	16	8/14	26	2/21	31	9/21	54	4/3	44	4/3*	40	4/1
1975	26	6/11	28	8/1	32	8/12	29	5/22	33	11/30	42	1/25	40	9/5	34	4/3
1976	29	3/16	32	7/24	19	6/5	22	5/28	30	2/21	35	3/12	41	1/13	36	3/27

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	30	6/5	20	5/25	31	7/13	26	3/12	39	2/23	38	2/27	37	6/30	33	3/4
1978	30	8/25	26	3/24	24	4/8	28	12/3	26	12/31	32	4/6	38	1/26	34	4/24
1979	31	2/26	22	9/21	25	4/12	33	11/1	31	10/22	34	11/26	38	2/22	33	4/27

(*) Published Values

1951	W	42
1952	NW	40
1957	NW	36
1968	NW	35
1971	NW	32
1974	W	36

Portland, Maine (1950-1979)

Anemometer Height	Begin Date	End Date
55'	---	10/05/64
20'	10/06/64	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	33	4/8	37	7/12	66	11/26	46	11/26*	46	4/20	36	5/13	48	1/11	49	5/7
1951	36	4/26	31	3/12	36	3/14	50	1/24	54	2/7	37	4/15	34	2/8	34	5/2
1952	58	2/18	41	2/17	48	5/12	44	12/6	41	1/23	27	12/25	29	1/18	40	4/20
1953	35	3/29	37	3/30	46	3/26	50	11/25	44	3/4	41	4/23	41	2/16	46	2/1
1954	32	1/4	44	11/3	69	8/31	47	12/18	33	4/5	32	9/22	41	3/26	60	9/11
1955	41	4/4	41	10/15	43	10/14	28	3/20	32	10/24	52	3/17	46	3/17*	40	11/20
1956	45	3/17	44	1/8	34	6/8	35	6/8	35	5/9	38	3/9	32	10/18	34	12/18
1957	32	1/10	33	6/25	24	6/13	62	12/26	49	11/9	37	11/9*	35	12/1	34	5/1
1958	45	4/2	38	4/6	32	1/1	26	5/1	31	12/19	40	12/7	29	5/9	32	12/20
1959	32	12/29	41	3/12	35	3/6	45	10/24	46	12/7	42	1/16	34	1/16*	31	2/7
1960	42	12/12	36	2/19	39	2/6	62	9/12	39	9/12*	37	4/12	23	10/17	26	2/3
1961	36	7/21	36	4/13	42	3/9	32	5/25	30	5/26	32	2/19	27	11/18	31	11/25
1962	34	11/15	34	3/6	45	12/6	43	1/15	29	7/25	42	1/16	38	7/9	38	4/24
1963	45	10/29	24	6/6	45	12/9	34	5/18	48	11/30	42	5/20	49	4/20	40	4/4*
1964	36	2/16	36	2/7	29	1/30	33	11/26	33	1/25	34	3/27	32	5/25	43	2/3
1965	26	1/3	20	3/5	34	10/8	42	2/25	29	9/1	35	11/1	30	10/27	42	11/4
1966	29	1/30*	40	1/30	29	1/23	33	11/3	23	8/4	28	12/25	31	9/23	33	1/8
1967	29	4/28	27	5/8	28	5/7	22	9/29	25	5/19	29	2/11	41	2/16	37	5/12
1968	26	5/26	24	11/8	27	12/4	31	4/25	25	3/23	30	2/10	40	2/17	34	3/1
1969	32	2/10	33	2/9	36	4/23	32	12/27	36	11/5	45	6/20	42	1/2	31	5/5
1970	57	12/24	20	11/13	31	3/23	31	11/20	26	4/27	35	2/3	30	2/12	38	3/27
1971	29	4/7	25	11/25	38	3/4	31	8/28	26	2/14	27	7/13	38	1/30	34	12/25
1972	37	2/20	33	9/3	34	2/19	42	2/4	36	11/26	28	5/30	32	12/1	42	1/25
1973	36	1/20	30	4/27	34	4/2	38	12/9	35	2/2	30	12/22	34	10/14	35	1/29
1974	29	3/27	27	4/24	29	3/31	26	12/16	38	5/13	30	3/23	41	1/27	43	1/31
1975	33	1/27	26	12/22	40	1/25	33	1/25*	24	3/12	34	1/18	41	4/20	36	4/20*
1976	36	12/11*	23	3/16	18	6/3	28	5/2	33	12/7	29	2/3	41	2/2	51	12/11

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	32	4/28	30	5/9	38	2/25	37	1/28	36	10/9	27	8/5	36	4/6	37	4/3
1978	27	3/7	32	1/14	31	12/25	48	1/9	39	1/26	29	6/8	36	3/29	43	4/2
1979	28	2/17	33	1/25	25	3/25	29	3/25	31	9/3	33	3/14	35	4/6	34	12/17

(*) Published Values

1950	SE	39
1955	W	42
1957	SW	32
1959	W	33
1960	S	33
1963	NW	37
1966	N	25
1975	NW	34
1976	N	29

Detroit, Michigan (1950-1979)

Anemometer Height	Begin Date	End Date
77'	---	4/16/52
82'	4/17/52	4/19/66
20'	4/20/66	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	38	11/25	25	8/17	26	7/19	21	3/7	32	12/17	42	1/14	42	1/11	52	1/10
1951	36	1/21	30	3/7	24	4/12	24	3/18	34	11/13	56	6/1	36	8/21	43	3/24
1952	37	3/11	27	4/15	20	5/18	29	3/22	26	11/25	65	11/26	42	10/1*	47	6/10
1953	38	6/30	36	6/30*	26	3/2	30	4/15	28	2/20	54	4/10	49	2/21	48	2/28
1954	34	4/24*	26	2/16	23	10/5	24	10/14*	26	6/15	44	9/21	56	3/25	47	3/2
1955	57	7/27	28	5/16	19	4/24	26	3/3	27	2/5	57	3/22	48	11/16*	46	3/23
1956	30	1/7	37	7/2	26	3/28	25	4/27*	27	4/3*	45	3/11*	51	3/11	51	4/28
1957	31	1/22	29	5/10	28	4/4*	33	4/4	25	12/25	42	3/12	45	9/23	42	4/6*
1958	35	9/7	25	3/9	26	2/27	29	4/5	27	11/25*	42	9/6	47	2/24	42	5/8
1959	40	3/17	37	8/21	25	1/20	25	4/3*	38	8/26	48	3/15	44	3/6	43	4/29
1960	42	9/1*	45	9/1	24	3/16	21	6/21	27	11/28*	42	4/11	42	1/5	77	7/22
1961	35	3/9	26	4/12	26	3/13	19	5/6	26	8/10	37	4/16	41	3/6	36	5/2
1962	30	6/25	28	3/21	24	4/12	25	2/13	26	4/28	34	1/7	40	5/24	57	9/13
1963	41	4/30	26	2/7	22	3/11	29	3/19	25	11/22	42	11/23	44	10/2*	60	5/4
1964	36	3/10	28	1/12	21	3/20	22	8/21	27	4/14*	45	3/5	56	6/19	38	1/10
1965	34	12/19	28	1/16	22	3/4	23	11/26	32	9/15	42	2/12	55	4/12	46	6/28
1966	35	11/2	34	4/27	19	5/12	29	11/10	26	1/9	34	3/18	46	3/1	40	2/16*
1967	34	7/19	26	1/26	24	1/16	22	4/21	28	11/18	52	2/16	39	4/17	32	1/28
1968	31	1/15	30	6/25	26	5/26	28	5/27	42	4/14	45	4/8	50	7/9	34	6/21
1969	33	7/4	31	4/18	27	3/24	34	6/12	23	3/23	36	3/20	38	4/21	35	2/4
1970	26	6/11	29	4/1	36	4/19	23	1/28	29	6/18	40	5/1	39	6/24	48	7/3
1971	30	2/13	23	2/12	27	2/22	20	3/21	33	6/29	45	12/15	50	1/30	50	1/26
1972	29	6/23	32	5/9	32	4/16	19	3/6	31	1/24*	46	7/18	50	12/6	42	2/19
1973	27	1/28	28	4/9	26	1/31	23	10/28	35	5/1	45	4/16	34	8/9	34	2/17
1974	26	6/30	28	11/30	25	4/1	25	4/3	27	6/7	50	1/27	40	5/11	38	1/31
1975	27	12/6	32	10/18	26	3/21	25	6/4	35	1/10	52	3/24	44	1/11*	38	3/22
1976	28	7/6	33	4/25	27	1/25	17	3/29	22	2/9	49	3/5	35	2/17	38	2/1

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	38	3/22	32	12/5	33	3/19	25	3/12	25	12/22	38	1/26	56	7/19	37	3/16
1978	23	5/1	28	3/24	32	5/4	30	5/13	33	6/26	51	9/11	41	4/1*	42	1/9
1979	32	12/25	30	2/25	24	2/18	24	10/31	33	10/22	36	11/26	47	4/6	56	4/5

(*) Published Values

1952	W 38
1953	NE 26
1954	N 30, SE 22
1955	W 42
1956	SE 20, S 21, SW 43
1957	E 26, NW 38
1958	S 23
1959	SE 21
1960	N 35, S 26
1963	W 42
1964	S 23
1966	N 35
1972	S 29
1975	W 43
1978	W 39

Jackson, Mississippi (1950-1962, 1965-1975)

Anemometer Height	Begin Date	End Date
46'	---	6/4/55
39'	6/5/55	2/16/59
30'	2/17/59	7/7/63
20	7/8/63	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	33	5/19	21	10/17	39	7/11	35	4/24	45	6/3	27	4/29	35	3/7	59	3/27
1951	33	9/10	18	8/26	29	8/17	37	9/12	57	12/20	38	12/8	33	12/21	59	12/14
1952	39	8/18	26	7/2	38	5/19	46	11/25	68	3/10	34	2/28	31	3/4	50	1/9
1953	38	1/8	36	7/27	19	8/26	42	1/23	49	4/29	32	5/19	36	3/22	34	12/14
1954	35	12/6	40	6/28	31	8/22	42	7/16	31	3/10	42	1/20	36	2/21	56	12/5
1955	48	4/21	37	6/16	29	6/21	38	2/5	37	3/20	37	2/1	41	2/11*	56	3/25
1956	31	12/28	34	8/7	38	7/5	29	5/26	35	7/23	29	3/6	32	2/6	36	2/8
1957	54	7/2	32	9/18	30	3/23	52	6/27	34	12/19	34	11/7	35	8/14	34	12/8
1958	34	1/7	30	7/26	35	4/9	33	3/23	30	4/23	24	7/5	40	2/27	38	2/15
1959	33	4/11	30	8/22	26	8/19	42	3/4	26	3/14	31	3/20	26	3/3	38	1/21
1960	36	1/30	34	7/28	24	8/1	29	9/5	27	2/3	34	2/9	32	3/29	38	1/29
1961	40	12/17	29	7/3	34	12/9	26	6/9	40	11/22	29	7/2	29	7/21	38	7/7
1962	37	4/13	29	5/30	25	7/13	32	4/27	30	4/10	32	9/14	34	11/11	57	4/30
1965	29	1/16	33	3/29	22	7/21	38	9/10	30	2/9	29	12/24	23	3/4	37	11/27
1966	30	5/19	18	6/29	21	5/5	39	2/9	39	12/28	24	9/9	26	8/9*	45	3/3
1967	31	3/6	29	11/30	29	12/2	34	3/30	27	4/30	29	2/15	17	3/11	40	5/31
1968	38	1/23	17	6/12	29	4/3	29	11/27	40	3/20	28	3/11	26	5/30	32	12/19
1969	27	2/3	40	8/18	22	8/18*	40	6/30	24	12/29	28	1/8	26	12/7	34	6/2
1970	24	2/25	23	8/4	23	12/30	31	7/19	36	7/20	31	2/1	26	4/2	36	3/3
1971	28	7/16	33	9/16	23	7/12	37	2/21	30	2/4	32	6/6	22	7/24	30	3/6
1972	34	6/25	33	8/22	17	5/24	33	10/27	30	2/29	33	8/25	19	6/30	41	3/27
1973	30	7/3	31	7/2	30	4/19	38	4/18	35	11/25	27	4/26	30	12/20	42	11/4
1974	31	7/20	23	7/15	22	3/26	37	2/18	39	2/21	34	9/10	25	1/28	34	3/28
1975	27	2/9	21	6/6	26	3/18	34	6/19	34	8/24	36	5/29	20	2/24	33	5/26

(*) Published Values

1955	W	37
1966	W	20
1969	E	16

Great Falls, Montana (1950-1979)

Anemometer Height	Begin Date	End Date
75'	---	7/31/59
22'	8/1/59	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	30	6/6	33	4/27	22	6/16	22	4/7	60	11/16	67	11/21	65	4/17	48	3/6
1951	47	6/26	34	6/17	43	5/6	32	8/2	57	1/21	65	5/28	73	3/15	48	6/24
1952	29	5/26	33	7/10	43	6/11	28	7/18	51	1/9	66	6/12	58	6/12*	52	3/23
1953	40	2/23	33	5/24	23	7/26	36	8/23	35	11/2	68	12/30	68	8/24	57	6/3
1954	25	4/2	30	4/30	30	5/9	22	5/8	49	9/19	71	8/9	72	2/24	50	4/14
1955	54	3/22	29	6/23	21	7/9	30	6/24	48	11/3*	73	11/3	61	5/8	50	7/25
1956	33	4/24	25	4/21	32	6/3	33	9/8	38	2/21	82	12/10	62	10/21	51	8/1
1957	30	2/25	32	6/6	32	5/4	29	5/3	36	5/2	68	7/22	65	11/23	51	7/26
1958	34	6/17	34	4/22	20	5/7	17	6/13	47	2/24	75	12/31	70	6/27	53	4/18*
1959	31	11/3	22	4/15	26	6/16	34	6/13	36	1/8	56	1/18	51	9/8	53	3/1
1960	29	4/22	29	4/23	17	6/18	29	5/12	28	8/24	69	9/4	51	11/21	43	11/1
1961	29	5/9	37	6/17	31	4/22	25	5/4	32	9/16	56	3/1	47	4/3	41	4/25
1962	41	2/22	21	7/21	21	5/24	21	5/10	27	2/9	61	11/20	43	11/19*	32	2/4
1963	32	4/27	29	1/28	23	6/2	32	7/9	36	4/14	51	12/31	43	7/14	44	1/9
1964	38	2/24	29	7/27	22	5/16	24	5/27	34	7/14	44	1/16	47	9/30	38	3/15
1965	29	3/9	26	6/3	17	4/6	24	1/3	15	6/11	43	2/4	56	10/6	36	5/6
1966	29	3/21	21	3/1	26	5/10	29	7/2	35	6/28	51	11/25	43	5/29	41	10/8
1967	41	3/6	24	5/15	26	5/31	21	8/30	17	8/26	56	10/19	47	7/31	36	2/21
1968	31	1/26	29	5/19	18	1/25	34	6/19	26	12/15	47	12/3	47	4/11	47	7/29
1969	28	10/10	26	6/11	17	6/24	20	9/11	36	2/8	47	2/3	38	3/16*	38	8/14
1970	20	2/26	31	4/14	16	1/19	16	5/4	29	12/3	58	6/27	29	9/27	36	8/2
1971	27	9/20	32	3/24	18	5/30	28	5/29	35	7/22	47	12/31	38	2/11	34	4/9
1972	23	1/23	26	7/18	26	6/9	27	6/8	22	10/5	50	12/26	40	1/9	32	4/12
1973	31	4/19	25	8/22	21	7/9	26	6/22	32	3/10	48	10/13	41	5/8	38	12/25
1974	51	3/21	31	6/20	25	5/17	22	8/7	34	1/18	55	1/15	37	4/30	32	3/1
1975	30	3/27	26	5/20	15	3/1	23	4/24	42	7/14	52	10/4	33	5/24	29	4/29
1976	29	10/14	26	4/26	31	4/27	48	7/11	31	5/10	47	1/27	38	1/23	35	3/11

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	34	1/7	26	4/30	29	5/6	23	7/4	35	3/23	46	2/16	39	8/24	40	6/1
1978	28	7/30	29	5/5	17	2/7	14	4/30	32	9/7	44	12/14	55	8/22	42	6/9
1979	32	1/21	26	7/5	16	5/22	26	6/16	30	2/13	58	12/4	42	12/6	33	4/30

(*) Published Values

1952	W	56
1955	S	45
1958	NW	51
1962	W	38
1969	W	32

Omaha, Nebraska (1950-1976)

Anemometer Height	Begin Date	End Date
68'	---	8/31/54
74'	9/1/54	3/31/63
20'	4/1/63	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	61	3/7*	50	6/14	34	8/12	50	5/8	57	3/26	47	3/26*	37	10/7	73	3/7
1951	43	5/27	35	5/10	45	2/27	41	4/20	37	3/26	43	12/6	52	6/25	56	11/3
1952	45	11/25	42	6/20	36	6/21	40	3/12	43	6/22	40	6/22*	59	8/19	50	3/22
1953	46	11/26*	28	12/8	37	4/28	40	8/6	57	5/10*	59	5/10	46	9/17	50	4/15
1954	47	1/20	30	5/1	42	3/12	39	6/8	39	4/30	42	8/3	45	8/14	54	4/20
1955	46	7/13	29	7/23	33	2/13	38	4/17	45	4/3	36	5/6	35	4/19	49	1/28
1956	57	7/7	50	7/11*	36	7/28	43	10/24	38	5/10	57	6/21	39	8/7	50	4/7
1957	49	6/6	45	6/6*	58	5/16	53	5/16*	43	4/19	34	4/19*	41	3/11	43	11/8
1958	50	6/8	34	2/27	43	4/4	40	4/4*	54	7/8	34	10/6*	37	7/19	42	11/5*
1959	49	3/14	49	3/14*	34	5/18	45	8/28	45	8/22	35	4/4	65	5/20	43	10/23
1960	55	8/5	49	4/16	39	4/1	40	4/19*	45	4/19	54	6/15	42	6/15*	49	5/20
1961	47	1/20	42	3/12	42	5/30	38	3/25*	43	3/25	30	5/31	34	3/10	50	4/15
1962	55	8/9	43	7/21	42	5/28	44	2/18	40	4/16	45	5/22	42	5/4	56	5/7
1963	44	6/5	28	6/5*	32	5/12	38	4/15	44	3/16	35	6/9	38	4/3	49	12/8
1964	42	5/25*	28	7/22	33	6/16	37	6/22	33	3/12	32	5/6	46	5/8	63	5/25
1965	45	3/2	26	6/2	27	3/16	30	4/1	34	5/5	37	5/24	42	4/8	45	1/31
1966	50	3/23	34	3/23*	26	4/11	28	5/14	27	6/22	32	5/7	28	3/3	42	10/14
1967	56	6/4	21	3/14	30	5/30	30	4/12	42	3/30	38	5/1	41	4/17	56	7/9
1968	39	3/31	28	12/18	19	9/28	38	5/6	43	3/17	35	3/17*	32	4/8	65	5/15
1969	30	6/19	30	8/8	35	5/21	32	4/25	27	8/6	32	4/20	34	6/28	39	1/5
1970	38	2/18	27	6/3	38	4/18	29	4/12	32	4/7	42	4/22	33	12/1	47	2/2
1971	39	6/17*	26	5/5	26	4/21	35	9/30	28	6/27	45	6/6	26	7/10	56	6/17
1972	33	3/1	33	4/20	27	6/9	28	3/26	35	4/17	45	9/12	38	9/12*	47	1/24
1973	50	5/9	36	7/9	26	10/10	49	4/16	32	3/17	37	3/14	27	9/25	39	1/27
1974	35	5/2	44	8/16	36	6/8	35	8/14	36	4/20	38	7/28	30	10/4	40	2/10
1975	38	12/5	26	8/10	23	9/4	42	3/26	31	10/12	34	5/7	34	6/2	44	11/20
1976	41	2/21	36	2/20	25	5/23	41	4/16*	58	4/16	52	4/14	16	2/19	40	3/12

(*) Published Values

1950	N 47, SW 38
1952	SW 37
1953	N 45, S 42
1956	NE 42
1957	NE 32, SE 39, SW 27
1958	SE 34, SW 26, NW 41
1959	NE 42
1960	SE 34, W 33
1961	SE 36
1963	NE 23
1966	NE 30
1968	SW 32
1971	N 33
1972	W 37
1976	SE 34

Buffalo, New York (1950-1979)

Anemometer Height	Begin Date	End Date
96'	---	8/23/59
20'	8/24/59	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	31	5/18	32	2/22	49	11/25	42	3/27	43	1/13	91	1/14	48	3/2	37	11/21
1951	29	3/12	28	9/6	29	3/14	34	11/13	42	11/14	66	3/24	52	9/27	45	6/2
1952	34	11/21	36	8/18	27	3/13	26	5/24	42	10/31	52	1/15	51	1/15*	42	12/27
1953	30	1/11	38	11/7	26	3/2	27	12/6*	46	3/3	69	2/21	50	1/18	59	7/1
1954	56	6/12	42	2/16	30	8/26	50	2/20	54	3/25	63	10/15	45	9/22	35	8/4
1955	23	4/28	47	8/13	28	3/3	25	4/13	41	3/23*	64	11/16	57	11/17	36	5/20
1956	27	4/8	34	1/6	25	2/16	21	2/12*	36	2/12	57	3/11	56	11/21	47	9/30
1957	36	5/10	33	4/8	26	5/20	42	1/20	37	12/25	65	11/8	67	4/25	46	4/25*
1958	31	9/27	32	4/7	33	3/21	22	9/19	36	2/24	59	10/10	51	8/31	40	10/5
1959	33	6/15	35	3/27	26	3/26	29	10/23	45	4/28	65	3/6	68	3/7	38	6/14
1960	29	10/6	26	2/25	21	5/6	27	4/30	42	4/11	47	1/8	42	2/9	36	7/30
1961	29	12/15	26	2/25	20	4/25	31	4/16	28	2/17	43	2/19	38	11/16	31	12/7
1962	22	9/19	34	1/6	29	12/6	24	2/13	30	11/26	47	1/7	44	1/7*	43	5/23
1963	29	10/30	29	2/7	29	1/11	26	3/19	29	6/9	52	3/6	47	1/24	29	1/27
1964	26	6/16	24	1/13	32	3/10	25	4/29	32	3/24	52	3/5	53	3/26	37	3/26*
1965	27	9/17	26	1/16	29	1/23	32	3/17	26	9/30	51	1/26	47	10/31	30	8/28
1966	26	9/22	20	7/5	21	5/12	21	4/28	26	12/7	43	11/3	41	1/31	33	6/9
1967	29	11/14	29	3/15	29	1/26	20	12/2	38	12/21	57	2/16	45	2/16*	29	9/24
1968	29	11/12	29	3/12	29	6/25	20	9/18	29	4/23	41	12/29	41	12/5	29	3/13
1969	24	1/31	35	4/19	18	12/23	23	11/2	32	11/15	44	5/9	36	1/1	30	4/17
1970	24	4/24	24	12/11	21	4/19	29	4/20	29	2/2	41	9/26	37	3/26	31	4/3
1971	29	8/22	20	6/27	24	12/30	19	2/4	31	4/1*	52	3/15	41	3/15*	31	12/21
1972	28	6/22	32	5/8	28	4/22	23	11/24	32	12/12	48	1/17	44	1/17*	32	2/19
1973	29	3/14	32	10/14*	29	3/17	17	12/13	31	1/11	34	8/31	38	12/6	36	3/15
1974	29	5/1	25	4/8	31	12/1	21	5/16	34	3/3	47	1/27	48	4/15	34	3/25
1975	31	1/1	28	4/2	24	3/14	21	6/26	32	1/11	47	2/26	47	1/25	31	4/4
1976	25	4/11	26	4/25	16	4/24	29	5/16	29	3/12	50	3/27	32	1/14	33	6/20

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	26	3/22	34	12/5	27	9/24	40	2/25	28	4/2	50	1/28	39	7/31	34	11/26
1978	22	9/13	28	1/14	25	4/18	23	11/13	60	1/26	50	1/10	32	8/19	32	12/17
1979	24	5/21	33	2/26	22	1/24	24	5/19	29	12/11	49	4/6	33	1/14	31	12/8

(*) Published Values

1952	W 37
1953	SE 18
1955	S 38
1956	SE 17
1957	NW 40
1962	W 41
1964	NW 32
1967	W 38
1971	S 29, W 38
1972	W 41
1973	NE 29

Charlotte, North Carolina (1952-1978)

Anemometer Height	Begin Date	End Date
85'	---	4/25/51
41'	4/26/51	8/ 3/54
58'	8/ 4/54	11/16/60
20'	11/17/60	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1952	40	8/16	23	10/20	27	8/4	41	3/10	37	3/11	44	5/10	15	5/6	29	1/10
1953	24	10/29	20	1/9	14	9/29	24	1/18	33	2/21	39	12/14	30	4/1	41	6/10
1954	43	11/3	57	12/6	19	4/9	33	4/25	34	4/16	40	12/30	32	11/28	54	8/16
1955	44	1/13	34	7/18	30	7/9	30	5/13	32	4/24	46	3/22	31	6/23	43	2/11
1956	47	9/26	42	9/25	24	10/22	23	2/17	43	4/6	52	4/7	47	3/8	36	3/8*
1957	54	1/10	38	1/10*	21	5/21	31	1/22	38	4/22	47	8/4	37	11/30*	57	6/19
1958	32	3/31	40	4/16	16	9/23	36	7/13	19	7/7	54	2/28	40	6/15	56	6/6
1959	34	7/30	38	9/29	30	3/5	36	9/30	26	6/26	39	3/6	34	12/6	50	7/10
1960	44	7/1	56	1/30	27	8/16	33	2/10	27	4/3	40	1/15	32	2/19	47	10/3
1961	22	7/31	24	6/15	28	3/31	33	4/12	29	2/25*	49	2/25	31	6/5	28	6/5*
1962	25	11/26	36	5/15	18	3/2	19	5/31	28	7/24	34	2/21	39	7/23*	59	7/23
1963	26	6/6	27	2/26	16	7/23	31	8/19	24	6/28	33	3/6	28	3/19	27	10/29
1964	25	11/30	33	8/3	26	2/18	16	8/9	26	3/9	34	3/5	26	2/19	28	3/30
1965	24	12/26	22	6/3	17	2/24	19	2/12	28	8/7	38	2/25	27	5/2	24	7/5
1966	24	5/10	32	7/19	19	6/10	17	2/12	22	2/11	37	2/13	26	5/1	29	9/21
1967	22	2/7	23	5/23	17	1/19	27	12/18	29	3/6	35	3/7	25	2/24	24	5/29
1968	34	8/11	28	8/11*	19	2/22	21	12/3	29	3/12	38	12/28	28	12/28*	26	3/23
1969	29	7/11	28	1/20	24	3/24	20	4/16	29	3/29	37	6/23	26	6/24	32	7/7
1970	24	7/21	20	4/1	25	7/25	19	7/29	26	2/2	34	4/2	24	1/8	34	7/4
1971	23	4/19	23	12/3	16	9/17	25	9/18	22	4/25	47	3/15	28	3/15*	26	1/27
1972	27	2/20	23	5/26	17	6/20	25	5/2	30	7/31	34	7/26	29	8/9	30	7/3
1973	29	9/3	27	2/10	14	8/25	26	2/1	26	9/14	34	3/17	25	3/18	32	11/21
1974	29	3/29	24	3/12	33	6/14	23	4/4	21	1/1	36	2/22	33	6/16	29	5/19
1975	28	1/20	19	9/1	17	3/18	33	7/29	31	1/11	45	12/31	28	12/31*	40	3/24
1976	23	9/10	24	6/5	27	5/28	29	2/21	31	2/18	34	5/15	34	4/4	45	7/15
1977	32	6/6	23	5/19	17	10/23	24	3/12	26	8/13	49	3/18	34	7/21*	31	6/28
1978	27	4/26	29	7/14	18	4/3	31	7/15	30	1/8	50	1/26	30	1/26*	29	1/9

(*) Published Values

1956	NW 31
1957	NE 31, W 33
1961	S 26, NW 24
1962	W 34
1968	NE 26, W 25
1971	W 25
1975	W 22
1977	W 32
1978	W 27

Bismarck, North Dakota (1950-1979)

Anemometer Height	Begin Date	End Date
43'	---	10/16/61
20'	10/17/61	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	56	3/7	47	6/7	50	3/26	56	8/5	33	4/8	33	6/9*	47	5/30	56	4/18
1951	47	7/7	35	7/25	42	2/28	56	4/29	38	4/26	24	8/16	57	3/5	50	4/14
1952	49	9/30	34	6/15*	56	6/10	35	6/1	34	8/7	56	6/15	56	8/31	56	7/22
1953	51	6/13*	42	6/13*	50	4/23	41	9/1	49	11/5	57	5/9	56	3/18	66	6/14
1954	49	5/30	33	10/23	65	6/27	38	4/25	50	8/20	27	5/29	56	4/10	56	7/28
1955	38	5/22	42	8/5*	49	4/3	43	9/15	49	4/14	59	7/6	63	4/20	56	8/5
1956	42	7/26	29	6/12	40	7/6	52	10/24	45	6/5	39	11/3	57	8/27	61	12/10
1957	43	7/16	34	9/18	47	8/11	50	10/3	34	10/2*	59	7/6	42	1/7	57	7/1
1958	52	5/29	45	5/21	38	8/3	43	5/4	30	10/5	40	6/9	50	11/7	67	11/25
1959	38	6/18	47	9/14	35	11/25	50	8/24	36	7/6	35	7/27	61	10/10	66	9/8
1960	66	6/27	43	4/22	42	4/19	48	4/12	33	8/16*	35	5/24	53	4/13	66	5/25
1961	38	7/9	35	6/30	44	4/23	35	3/24	29	4/9	31	8/29	57	9/2	42	4/14
1962	50	1/6	30	7/19	36	5/13	30	7/6	34	4/20	25	1/10	42	9/29	47	8/27
1963	50	6/23	45	7/31	24	8/20	36	6/21	40	10/3	56	4/16	45	8/5	54	1/19
1964	34	4/6	52	6/8	43	5/2	40	4/24	29	5/20	36	5/4	43	9/3	49	1/17
1965	27	7/19	38	5/9	33	4/2	34	6/25	28	6/19*	42	6/19	38	5/18	52	5/1
1966	35	7/31	41	3/3	26	4/26	37	3/7	26	7/5	33	6/22	36	3/20	52	3/4
1967	38	12/24	46	4/30	28	2/14	32	5/30	36	4/11	40	8/17	44	11/11	52	5/7
1968	45	4/3	32	6/24	37	4/2	40	5/13	31	1/10	25	3/6*	45	3/28	46	12/4
1969	52	5/9	36	4/26	29	5/3	39	2/25	37	2/26	29	7/7	37	7/26	47	11/13
1970	31	2/12	40	5/8	29	3/1	30	7/21	33	5/6	30	4/29	47	2/3	50	2/4
1971	36	1/29	34	9/4	31	5/30	40	7/11	45	10/18	30	6/5	42	11/5	45	4/10
1972	30	5/13	31	5/1	29	6/9	36	5/18	29	5/17	47	8/17	40	9/20	59	2/17
1973	34	3/14	35	4/19	33	6/18	39	3/21	30	6/14	25	7/2	34	6/3	45	12/8
1974	25	8/2	35	4/10	31	8/19	33	8/14	40	4/19	31	5/21	45	5/1	42	9/29
1975	29	11/9	35	6/5	49	5/6	40	4/8	29	6/27	33	9/18*	45	9/19	54	1/11
1976	38	2/3	38	5/1	30	7/8	36	5/11	31	6/4	40	6/12	43	4/17	47	2/2

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	34	3/30	40	3/29	22	10/7	38	7/29	37	5/24	45	5/28	38	7/11	45	7/30
1978	26	10/13	26	6/6	30	12/28	34	4/5	30	5/16	53	9/11	42	9/11*	54	4/12
1979	34	6/19	28	5/3	19	5/6	45	4/18	32	7/19	26	6/2	47	5/19	43	3/13

(*) Published Values

1950	SW 29
1952	NE 33
1953	N 43, NE 33
1955	NE 30
1957	S 30
1960	S 28
1965	S 24
1968	SW 20
1975	SW 30
1978	W 40

Toledo, Ohio (1959-1977)

Anemometer Height	Begin Date	End Date
66'	---	11/7/58
20'	11/8/58	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1959	34	4/30	28	3/27	29	3/26	22	3/5	18	5/17	38	2/15	36	4/29	40	4/3
1960	23	7/3	27	6/4	29	4/16	21	10/31	32	5/16	35	5/6	34	2/11	35	2/19
1961	31	2/25	27	3/8	28	2/3	21	5/8	20	4/17	36	11/16	47	6/1	29	3/9
1962	30	9/13	26	2/18	22	4/11	19	5/1	26	3/29	39	12/23	36	2/14	51	4/30
1963	26	1/11	24	4/22	20	4/28	36	6/29	30	1/22	42	6/10	38	3/17	35	4/30
1964	26	3/31	34	1/12	26	3/25	29	3/4	28	6/9	37	6/12	36	10/21	34	3/16
1965	29	12/25	32	1/16	24	1/23	16	3/31	22	2/20	41	3/18	47	8/27	38	10/31
1966	30	11/2	31	4/27	27	7/12	19	3/21	25	2/10	31	3/23	33	5/5	35	1/27
1967	35	7/30	26	5/7	25	6/1	28	10/24	23	2/10	56	2/16	38	4/17	31	4/3
1968	31	3/12	33	5/24	23	1/11	23	5/28	21	6/14	40	4/8	38	2/17	31	4/30
1969	26	12/31	32	7/12	18	2/28	34	6/12	27	2/4	35	3/20	50	6/27	53	7/4
1970	23	11/14	38	4/1	24	8/18	26	10/9	24	6/1	43	3/26	35	5/25	54	7/2
1971	22	3/3	25	2/22	25	1/3	17	4/8	29	10/27	45	2/5	47	1/29	42	4/24
1972	25	6/23	30	4/7	26	4/21	28	9/17	20	4/14	35	3/7	47	1/24	38	2/19
1973	30	4/27	23	3/26	26	3/9	26	12/4	34	6/4	43	6/26	38	3/15	38	7/3
1974	23	12/2	30	4/8	20	3/7	24	4/11	25	6/7	40	4/14	38	7/14	38	2/22
1975	28	3/8	29	9/24	21	3/27	34	1/10	26	6/15	43	11/10	42	1/29	50	7/3
1976	27	4/11	26	3/3	26	3/1	18	10/4	32	10/13	41	3/5	38	3/21	33	12/23
1977	36	5/8	29	12/5	23	7/4	38	3/12	26	3/28	38	3/4	42	1/28	28	4/6

Note: Dates of occurrence of "hidden" values and values published in LCD's not shown for this station.

Tulsa, Oklahoma (1950-1978)

Anemometer Height	Begin Date	End Date
61'	---	2/23/56
39'	2/24/56	8/28/62
23'	8/29/62	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	47	3/7	37	11/23	25	8/16*	19	12/4	52	1/24*	54	1/24	34	1/13	45	6/28
1951	48	8/13	38	6/8	40	2/20	33	12/17	41	1/26	45	5/19	56	8/10	42	6/22
1952	34	4/4	38	2/1	26	5/23	30	7/16	35	3/30	43	3/12	40	3/18	34	3/22
1953	38	4/17	35	7/3	33	3/13	33	5/9	38	2/18	41	11/20	36	3/29*	38	9/3
1954	56	8/1	37	2/11	49	8/7	29	7/30	35	1/23	43	3/12	38	3/24	52	12/5
1955	38	11/27	34	7/10	27	6/21	36	4/12	42	12/28	35	3/14	43	6/5	37	4/24
1956	35	4/2	36	8/31	48	9/17	32	3/31	34	2/23	42	8/9	29	3/17	48	2/24
1957	51	11/29	42	8/16*	31	4/26	40	4/25	36	3/10	18	5/31	29	4/22	41	5/22
1958	32	9/30	36	6/21	29	6/15	29	3/29	30	4/23	42	11/17	47	2/27	31	7/26
1959	50	3/20	43	6/11	30	9/1	26	3/4	34	5/2	33	4/24	38	3/14	46	1/29
1960	38	11/9	42	7/27	46	8/26	32	3/31	45	5/18	48	5/19	36	5/4*	34	2/10
1961	35	5/1	35	6/13	25	7/20	31	9/30	33	5/7	34	3/7	40	5/8	57	4/30
1962	35	9/5	33	6/7	28	8/5	37	3/28	32	6/1	32	11/14	30	6/23	36	1/5
1963	34	2/20	30	2/2	28	9/25	45	4/18	34	11/16	34	5/26	29	12/8	34	11/28
1964	33	11/30	35	5/10	31	6/28	33	6/7	40	4/12	36	10/7	34	6/14	38	7/9
1965	32	2/21	35	10/11	26	6/10	38	6/5	37	2/28	34	1/25	33	3/17	38	7/6
1966	39	5/17	37	4/8	25	7/20	27	7/2	38	4/10	41	10/14	29	3/22*	32	3/4
1967	38	10/30	30	3/5	40	8/22	34	8/22*	38	10/29	42	12/18	34	6/11	34	10/26
1968	35	3/12	35	6/14	30	6/15	41	5/7	35	12/11	41	12/12	30	10/27	34	2/28
1969	29	6/1	27	3/29	31	4/17	33	4/30	47	6/22	42	4/1	27	6/13	32	3/28
1970	31	2/2	29	3/27	17	3/31	38	10/22	36	11/26	35	8/17	30	10/8	33	3/25
1971	34	7/5	46	9/6	30	6/2	33	9/4	40	3/31	32	9/28	32	2/19	49	5/26
1972	34	4/3	32	7/1	34	6/14	40	4/26	34	3/11	33	3/6	29	5/1	29	1/4
1973	38	5/11	34	7/10	37	3/3	36	3/13	45	6/11	43	11/1	38	11/1*	38	9/12
1974	29	3/18	32	8/17	27	8/13	47	4/10	45	2/5	37	4/7	41	5/23	32	4/13*
1975	33	1/19	28	2/22	26	7/23	41	6/7	46	1/5	43	4/18	44	6/16	40	6/6
1976	34	12/30	28	8/5	28	6/29	40	3/19	42	3/20	42	3/29	40	5/30	33	2/21

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	37	1/28	33	2/26	24	6/20	39	3/11	43	2/22	49	12/16	42	1/4	37	4/4
1978	30	1/8	23	2/17	28	11/14	25	2/27	30	3/22	23	2/19	25	2/13	30	1/25

(*) Published Values

1950	E	23, S43
1953	W	34
1957	NE	38
1960	W	35
1966	W	27
1967	SE	31
1973	W	34
1974	NW	29

Portland, Oregon (1950-1979)

Anemometer Height	Begin Date	End Date
55'	---	10/5/64
20'	10/6/64	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	19	4/20	11	1/29*	28	1/29	29	12/19	48	2/7	50	10/27	31	11/30	25	4/2
1951	20	7/15	18	9/20	38	1/28	56	11/10	57	12/4	40	1/15*	49	11/28	23	5/29
1952	17	6/20	19	7/7	34	12/26	26	3/14	38	12/3	42	11/14	29	12/21	22	6/8
1953	18	4/10	8	6/28	24	3/27	26	11/27	55	11/14	43	1/9	31	1/9*	24	5/8
1954	22	5/20	18	10/15	24	12/1	40	1/25	47	1/7	47	1/2	35	2/17	26	5/31
1955	20	2/17	23	12/19	36	12/14	40	11/27	56	2/28	47	12/22	30	11/11	33	4/6
1956	17	4/27	23	1/31	32	11/29	35	2/24*	52	1/4	40	5/3	31	6/10	22	5/26
1957	24	4/5	18	9/13	29	1/13	25	12/10	60	4/14	35	12/23	19	11/25	26	4/23
1958	16	5/27	17	2/23	26	12/1	32	10/24	51	11/18	61	2/24	26	3/21	23	5/11
1959	15	10/1	22	4/7	32	2/17	38	12/11	42	1/24	35	3/31	29	3/30	26	3/9
1960	10	8/16	22	2/8*	35	3/3	40	12/7	34	2/1	47	4/13	26	6/19	23	5/18
1961	18	10/7	15	5/18	34	12/10	42	2/11	50	3/5	56	11/21	43	10/23	23	4/3
1962	20	3/11	17	2/19	40	2/15	47	2/6	88	10/12	36	1/14	26	3/27	30	3/8
1963	27	2/26	29	1/11	34	1/30	30	12/22	61	9/9	43	10/24	30	3/11	26	9/16
1964	14	4/13	31	12/16	43	1/28	34	1/26	49	1/17	35	1/5	33	4/4	29	12/15
1965	8	12/15	35	3/2	35	1/23	58	2/5	38	11/18	48	11/18	27	12/23*	23	3/16
1966	27	9/11	16	10/3	30	4/3	34	12/22	34	9/22	36	1/1	30	2/28	29	4/25
1967	24	8/18	23	12/21	34	11/2	37	1/24	70	10/2	38	3/22	25	11/27	31	2/17
1968	17	8/29	31	12/31	40	12/12	26	2/17	45	1/9	37	11/29	24	5/4	25	4/4
1969	17	8/14	22	1/1	35	10/13	26	12/3	36	3/16	46	12/11	35	3/22	26	7/22
1970	25	4/13	26	5/31	45	11/25	24	1/21	38	12/15	34	12/28	23	1/22	28	6/12
1971	17	8/25	12	4/25	35	9/16	30	12/12	48	3/26	31	2/10	31	2/25	26	7/15
1972	19	10/4	28	7/2	42	12/5	24	12/18	48	4/5	39	2/29	32	1/23	24	7/15
1973	25	8/12	19	9/4	46	1/9	23	1/12	29	12/11	32	3/1	31	3/18	28	10/6
1974	21	5/5	26	9/12	40	1/2	25	1/11	50	3/1	30	1/16	32	4/1	27	12/6
1975	28	11/10	15	9/10	33	2/5	37	1/31	28	3/2	36	5/3	32	2/19	28	3/30
1976	23	5/6	34	2/6	31	11/20	27	11/6	23	1/4	40	2/24	28	1/11	34	2/17

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	23	8/1	18	5/6	35	12/20	35	12/31	23	3/6	43	12/15	41	4/25	28	3/27
1978	20	11/17	8	8/8	38	12/31	37	1/1	35	11/20*	34	1/5	29	4/19	25	7/9
1979	22	6/6	17	7/15	39	11/28	39	1/7	44	4/12	32	2/12	24	7/9	34	11/24

(*) Published Values

1950	NE	None
1951	SW	38
1953	W	28
1956	SE	31
1960	NE	20
1965	W	25
1978	S	32

Harrisburg, Pennsylvania (1950-1977)

Anemometer Height	Begin Date	End Date
46'	---	12/19/61
22'	12/20/61	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	17	9/5	19	5/14	29	3/17	58	11/25	40	11/20	31	1/3	42	3/9	42	11/21
1951	31	4/29	26	3/14	27	11/1	41	4/12	26	4/22	40	1/21	38	3/24	42	12/15
1952	20	4/30	21	7/22	35	11/21	26	3/19	21	7/9	56	4/5	36	3/16*	47	3/11
1953	32	3/25	21	9/13	35	4/12	20	3/18	28	4/22	31	2/4	47	2/27	61	12/31
1954	26	3/30	17	10/15*	50	10/15	64	3/1	37	3/1*	36	9/19	40	3/20	47	7/4
1955	24	10/18	20	4/12	24	4/24	27	9/14	27	5/27	27	3/9	68	3/7	61	3/16
1956	28	3/24	20	4/11	26	3/7	22	7/8	30	4/16	44	5/31	47	1/30	59	2/25
1957	22	10/25	17	4/3	26	4/5	33	6/28	26	1/22	34	6/29	38	3/8	41	2/10
1958	25	12/25	35	1/25	27	4/6	26	4/21	23	9/30	28	10/31	38	11/29	36	10/11
1959	21	6/19	17	6/5	26	4/28	21	4/1	36	5/31	32	8/17	35	3/6	40	1/9
1960	23	8/9	14	12/11	25	2/18	21	5/8	21	6/29	32	4/26	37	2/20	33	2/7
1961	16	3/20	21	3/6	29	4/12	21	11/23	28	2/25	29	12/5*	33	5/9	37	2/26
1962	18	7/1	36	3/6	30	11/10	20	1/6	26	3/31	30	1/7	34	4/14	35	8/20
1963	29	5/10	33	11/7	17	9/5	19	5/13	26	7/14	32	7/2	48	6/10	42	4/4
1964	25	6/16	20	1/12	22	1/1	24	2/6	23	4/2	28	3/26*	42	3/26	35	4/15
1965	20	4/14	20	3/5	19	10/7	19	8/26	26	10/8*	36	2/25	42	4/12	41	4/13
1966	25	7/26	26	9/3	26	9/21	21	4/19	20	3/18	24	5/5	36	1/31	42	1/30
1967	32	7/25	28	8/3	26	4/7	27	9/28	18	4/18	31	9/21*	43	5/22	39	2/25
1968	33	7/19	24	1/14	22	5/28	26	5/26	23	11/28	23	4/4	42	12/5	43	2/17
1969	30	2/19	32	7/12	21	12/10	20	7/4	21	4/9	28	6/2	29	5/9	36	1/1
1970	26	9/27	26	12/17	24	12/16	23	8/19	25	2/2	23	4/26	51	4/2	44	4/2*
1971	19	5/22	24	10/24	18	12/14	18	4/13	25	5/25	30	3/15	46	1/26	42	1/27
1972	23	9/14	25	2/13	22	2/18	21	6/20	29	3/2	26	1/7	42	1/25	35	2/20
1973	32	1/20	23	12/9	33	9/14	24	9/22	29	3/17*	40	3/17	34	3/18	37	4/11
1974	17	7/20	22	2/2	34	12/1	22	4/4	16	6/16	27	6/10	36	2/23	34	9/1

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1975	22	6/29	43	7/3	17	1/6	27	3/19	26	12/1	34	2/25	40	8/13	46	4/3
1976	23	5/20	16	3/31	23	3/2	24	3/1	27	6/20	31	1/14*	50	1/14	47	12/21
1977	21	7/6	22	9/25	17	11/7*	22	11/7	17	4/19	24	8/10	34	12/9	42	11/20

(*) Published Values

1952	W 34
1954	NE 10, S 32
1961	SW 27
1964	SW 25
1965	S 23
1967	SW 29
1970	NW 38
1973	S 28
1976	SW 27
1977	E 15

Huron, South Dakota (1958-1977)

Anemometer Height	Begin Date	End Date
38'	---	1/9/62
20'	1/10/62	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1958	35	11/4	41	4/5	38	6/12	33	6/2	50	4/12	32	4/16	30	4/29	58	11/25
1959	58	7/3	26	3/23	26	9/16	32	2/11	51	6/10	47	7/20	46	8/2	57	4/1
1960	42	11/28	34	5/5	36	4/22	65	6/19	47	11/7	30	5/30	31	9/16	54	3/31
1961	35	4/26	49	5/14	27	5/17	44	4/23	42	4/13	65	7/25	42	6/11	47	4/20
1962	29	11/4	34	5/14	47	5/21	42	4/20	47	5/14	40	8/4	60	9/2	65	5/23
1963	33	3/15	36	7/7	44	6/22	37	4/15	40	3/15	26	3/26	49	5/9	59	12/8
1964	35	3/2	32	7/11	32	5/2	35	6/16	42	2/11	51	5/6	33	1/17	57	9/23
1965	35	3/1	32	5/8	23	5/22	36	1/31	35	10/15	42	5/5	22	6/6	47	3/17
1966	50	8/14	29	9/24	31	3/2	33	12/5	34	3/7	34	6/22	45	7/11	54	3/4
1967	33	10/23	47	4/30	27	8/21	38	4/20	38	3/29	35	3/30	34	12/17	57	1/16
1968	40	4/22	45	7/26	25	6/29	36	9/12	38	9/14	34	8/23	30	5/14	72	8/7
1969	50	8/8	38	5/9	24	6/24	35	4/7	35	4/29	34	4/26	33	6/23	56	7/14
1970	33	3/26	27	4/12	24	5/19	33	5/6	42	11/24	36	9/6	33	4/15	42	7/18
1971	36	3/31	34	3/18	34	10/16	34	7/9	45	10/18	38	10/2	37	9/5	43	4/1
1972	39	7/1	25	3/17	23	4/6	31	10/9	43	7/9	31	7/13	35	1/6	50	2/17
1973	43	5/11	34	5/24	31	3/13	45	4/19	35	4/20	31	6/18	34	8/6	46	7/1
1974	36	6/21	44	7/17	26	4/6	42	4/26	36	3/13	70	7/2	24	3/4	43	5/11
1975	32	8/11	26	9/10	33	5/7	56	7/31	34	7/29	42	5/22	34	3/28	52	9/17
1976	42	3/11	33	7/27	25	4/23	33	2/14	40	4/9	54	4/16	29	6/13	44	3/12
1977	40	11/8	45	3/11	26	8/24	36	8/29	35	3/24	45	9/8	29	7/11	45	11/20

Note: Dates of occurrence of "hidden" values and values published in LCD's not shown for this station.

Abilene, Texas (1950-1979)

Anemometer Height	Begin Date	End Date
58'	---	8/22/53
29'	8/23/53	12/10/53
60'	12/11/53	11/10/57
33'	11/11/57	5/ 4/60
20	5/ 5/60	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	56	12/5	68	5/13	27	5/11	41	6/5	56	5/8	47	3/23	43	3/27	46	6/2
1951	54	5/24	44	5/24*	28	4/16	47	5/15	61	4/30	48	5/21	35	1/17	109	6/10
1952	47	5/10	34	7/14	26	9/15	52	4/11	52	3/17	45	4/8	49	2/29	61	3/21
1953	47	1/8	34	8/11	35	5/11	53	7/15	71	3/26	55	3/26*	42	12/2	47	1/23
1954	45	5/11	36	2/25	52	9/30	52	4/30	49	3/1	55	9/20	55	2/19	61	5/6
1955	54	5/16	57	6/14	29	11/29	50	6/8	58	6/29	53	2/13	56	5/23	52	1/17
1956	50	3/7	37	7/8	40	6/18	47	3/20	49	10/24	45	4/30	47	4/2	60	2/24
1957	49	5/17	35	4/26	38	5/18	49	4/20	52	4/22	47	5/24	54	5/8	52	9/11
1958	49	4/20	36	4/20*	26	9/6	37	4/8	37	7/14	38	2/14	49	4/5	49	2/26
1959	41	11/26	43	6/5	29	6/5*	42	5/22	40	5/1	47	5/20	47	6/11	41	3/20
1960	35	4/17	35	8/9	29	4/25	36	2/19	38	6/16	48	2/9*	52	2/9	42	3/15
1961	54	6/3	57	6/4	49	6/5	37	3/25	35	10/27	43	4/11	38	3/7	42	6/7
1962	43	6/7	36	6/6	23	7/16	42	5/31	33	4/21	35	5/28	42	3/11	46	6/9
1963	53	5/5	41	11/8*	19	8/31	37	3/10	38	4/2	35	10/23	40	5/13	55	6/19
1964	35	4/12	34	7/29	34	7/25	38	2/14	35	2/12	35	8/27	31	3/3	46	8/20
1965	36	2/1	35	3/17	29	7/25	45	5/31	35	1/1	47	1/25	54	12/23	39	12/23*
1966	35	3/23	36	10/31	20	4/21	40	8/10	38	2/7	34	3/2	39	1/31	41	3/22
1967	42	1/6	40	2/11	25	8/22	32	3/19	37	3/30	39	4/13	40	4/12	34	5/19
1968	38	2/21	37	3/20	35	7/18	40	7/19	40	11/2	37	4/3	42	12/8	45	5/10
1969	47	6/23	42	6/8	33	4/9	38	5/4	34	4/25	36	4/1	39	2/7	40	5/16
1970	33	1/17	33	5/15	31	3/6	38	5/14	45	4/29	50	4/26	43	12/15	40	6/1
1971	39	5/27	58	10/22	30	10/22*	41	5/29	41	3/17	43	2/18	40	3/14	42	9/17
1972	43	12/5	51	6/28	19	6/10	43	4/26	34	1/17	38	3/7	43	12/29	50	4/19
1973	35	9/5	43	8/15	23	4/17	35	2/28	42	4/18	49	3/10	40	1/21	41	3/24
1974	33	3/15	38	7/15	24	7/5	41	4/11	42	4/10	35	4/2	40	4/3	40	6/3
1975	54	6/9	40	6/9*	31	5/27	42	4/7	41	5/2	37	5/20	39	4/18	42	3/17
1976	40	5/12	35	4/28	26	6/5	50	4/15	40	7/12	29	3/19	43	2/20	42	4/7

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	35	1/28	30	8/11	25	3/23	37	6/21	38	2/22	33	3/28	42	2/23	35	11/2
1978	36	2/20	32	5/2	38	8/21	38	3/12	40	3/19	40	5/26	38	12/20	45	6/6
1979	35	12/16	27	4/20	33	7/6	38	10/29	38	1/22	37	2/27	37	3/30	45	7/9

(*) Published Values

1951	NE	42
1953	SW	50
1958	NE	34
1959	E	26
1960	SW	36
1963	NE	35
1965	NW	35
1971	E	26
1975	NE	35

Corpus Christi, Texas (1949-1975)

Anemometer Height	Begin Date	End Date
31'	----------	10/13/55
24'	10/14/55	8/ 7/60
80'	8/ 8/60	9/18/60
23'	9/19/60	--------

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1949	40	10/30	32	9/23	36	4/23	48	2/13	45	12/20	26	8/6	46	4/1	40	2/25
1950	42	12/5	26	3/2	37	3/12	47	3/26	56	3/31	27	4/28	18	3/27*	40	3/13
1951	46	3/12	31	1/21	37	4/14	54	5/11	45	5/11*	19	4/13	17	3/13	42	4/9
1952	43	3/22	25	10/6	35	7/16	45	3/17	40	7/18	25	9/11	50	5/28	49	3/10
1953	40	3/4	32	12/17	34	3/15	42	3/12	45	3/30	26	1/25	18	8/25	43	1/8
1954	46	10/22	28	3/2	30	6/25	41	3/24	40	12/11	26	12/8	11	1/15*	34	12/5
1955	46	10/7	31	9/6	29	4/29	37	5/25	38	5/26	14	1/14*	18	5/13	40	1/17
1956	42	3/7	25	4/7	28	3/20	35	4/1	41	4/2	31	8/31	36	10/20	29	4/5
1957	36	3/12	28	11/9	30	3/20	37	3/10	35	4/20	19	10/30	45	3/24	27	11/24
1958	33	6/22	42	1/5	28	1/5*	30	5/3	33	4/23	10	4/15	17	1/25	32	12/30
1959	38	4/21	30	6/5	27	4/11	42	12/31	35	5/10	21	8/20	18	2/12	30	3/5
1960	37	2/12	42	10/16	37	6/23	35	3/8	37	3/34	22	2/17*	30	2/4	40	2/17
1961	52	9/10	40	4/29	32	6/30	34	2/26	42	4/30	44	9/12	42	11/22	63	9/11
1962	38	1/5	36	9/17	31	6/2	56	6/1	35	2/17	26	9/5	23	1/6	30	3/25
1963	36	1/27	42	1/26	29	3/20	48	4/16	30	4/16*	25	1/9	30	2/19	34	2/18
1964	41	12/17	20	3/10	33	3/18	38	2/12	42	3/6	24	8/7	31	2/5	45	3/9
1965	42	2/24	24	2/3	35	5/8	32	1/21	40	2/23	18	1/29	18	3/21	36	12/2
1966	41	11/1	28	9/17	37	4/21	34	11/26	45	4/14	19	10/12	40	6/18	34	12/23
1967	52	2/6	36	2/27	72	9/20	61	9/21	40	1/6	31	1/6*	25	12/11	43	2/11
1968	39	9/5	45	5/11	40	5/9	40	11/26	36	8/17	17	7/10	36	9/16	45	3/11
1969	40	11/18	34	1/24	29	4/30	38	4/12	35	6/25	17	2/6	42	12/6	31	12/29
1970	40	6/1	34	10/27	30	7/24	38	4/18	35	2/4	120	8/3	34	2/1	55	8/3*
1971	50	9/10*	54	9/11	27	7/10	44	2/18	35	5/5	20	8/6	35	5/10	66	9/10
1972	41	12/6	33	3/8	35	5/2	47	4/28	33	7/15	25	1/9	38	5/10	44	9/21
1973	37	6/13	34	2/17	24	8/4	43	4/15	39	11/24	19	8/2	38	1/21	42	9/5
1974	54	5/26	36	6/10	24	4/17	40	3/3	41	4/10	26	9/13	27	2/9	49	2/21
1975	40	1/12	30	3/28	30	8/31	49	5/24	37	11/29	23	6/29	42	8/4	38	5/14

(*) Published Values

1950	W	None
1951	S	42
1954	W	None
1955	SW	None
1958	E	26
1960	SW	None
1963	S	26
1967	SW	26
1971	N	35

Salt Lake City, Utah (1950-1979)

Anemometer Height	Begin Date	End Date
58'	---	7/1/54
29'	7/2/54	7/28/60
20'	7/29/60	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	34	1/9	29	5/5	28	6/5	52	1/14	47	4/8	42	4/7*	36	12/2	67	10/27
1951	42	5/11	23	6/10*	34	9/28	42	3/5	40	7/5	44	3/16	45	8/19	44	8/19*
1952	22	11/12	33	8/10	26	7/10	43	11/14	43	12/7	53	5/7	61	9/3	39	2/2
1953	28	2/8	34	5/9	38	10/22	39	7/27	40	5/7	40	7/26	51	3/21	57	5/21
1954	37	6/27	24	10/24	26	7/13	56	2/18	46	11/15	40	5/20	29	3/25	71	3/10
1955	19	3/30	24	7/6	32	7/17	47	5/14	54	12/25	54	4/26	42	6/27	40	5/21
1956	35	3/5	21	7/14	22	8/19	34	10/31	42	4/11	42	3/31	27	4/5	36	4/7
1957	26	4/7	22	6/13	19	1/26	36	1/20	43	8/28	30	7/30	45	7/21	32	3/12
1958	24	9/13	26	7/29	19	3/27	35	9/12	43	11/14	29	8/26	25	5/5	39	10/19
1959	27	3/13	30	6/26	26	5/21	32	12/25	35	7/13	38	8/11	42	6/5	36	11/25
1960	28	10/29	22	5/4	21	5/24	31	11/12	38	4/22	40	8/22	35	9/2	36	3/30
1961	43	10/29	25	3/18	26	7/8	36	8/8	42	10/26	47	4/22	49	8/6	40	4/12
1962	40	6/19	31	6/3	17	7/29	31	3/22	49	1/20	37	10/14*	37	7/13	36	4/5
1963	33	3/1	25	8/2	23	8/11	37	3/15	43	3/28	43	4/14	63	6/3	52	6/3*
1964	45	4/3	19	7/15	18	9/15	33	11/16	35	1/20	43	9/6	32	8/18	57	4/11
1965	28	7/4	26	4/26	27	4/12	36	1/7	35	11/14	45	8/3	27	2/9	36	7/19
1966	41	3/21	16	11/28	29	5/28	37	7/2	40	9/10	38	7/24	34	8/5	42	8/11
1967	37	6/21	40	7/16	28	6/19	41	3/28	45	3/11	38	4/5	26	4/30	43	5/10
1968	40	3/25	21	5/10	34	8/7	34	8/20	40	7/22	54	5/5	37	8/3	54	5/5
1969	34	1/17	29	5/7	35	6/7	34	1/21	43	4/23	45	8/11	43	7/6	44	3/23
1970	32	4/11	26	8/31	26	6/6	33	6/13	42	4/13	36	10/20	35	2/17*	46	5/23
1971	27	1/3	35	10/29	31	9/17	35	8/14	41	2/24	38	9/25	40	5/21	41	2/25
1972	37	6/17	35	5/20	25	8/25	38	4/11	37	8/28	37	6/16	34	1/23	55	9/5
1973	33	11/1	26	3/29	30	7/18	34	6/14	34	3/11	41	7/7	42	7/20	42	11/12
1974	28	6/3	14	5/11	30	7/14	36	2/28	45	3/2	38	3/2*	30	4/9	40	5/12
1975	32	7/22	22	9/13	26	7/10	36	3/21	37	10/7	35	10/11	36	1/4	38	6/2
1976	29	6/13	18	2/14	19	5/16	34	2/4	43	7/31	36	3/24	43	7/11	49	4/25

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	42	3/27	26	7/2	26	6/6	34	1/2	38	6/9	38	5/26	39	9/14	40	3/9
1978	38	5/11	27	5/11*	20	7/21	31	4/4	42	4/16	42	5/23	40	6/14	45	8/13
1979	30	4/9	23	5/9	30	7/19	26	8/17	40	2/14	34	3/16	35	8/15	38	6/17

(*) Published Values

1950	SW 34
1951	NE 15, NW 40
1962	SW 35
1963	NW 47
1970	W 32
1974	SW 32
1978	NE 23

Madison, Wisconsin (1950-1979)

Anemometer Height	Begin Date	End Date
40'	---	8/20/52
45'	8/21/52	1/31/58
38'	2/ 1/58	10/26/59
21'	10/27/59	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	42	3/8	49	6/13	42	4/23	45	3/26	26	11/5	77	5/5	73	5/6	45	3/1
1951	38	10/23	34	4/12	43	2/28	29	10/20	35	12/6	73	10/30	43	3/3	72	7/8
1952	45	4/13	36	2/19	28	4/8	32	8/20	38	11/25	46	1/15	42	10/15	35	6/11
1953	49	9/1	36	6/9	45	4/29	43	3/21	63	5/21	47	4/3	54	6/9	45	2/28
1954	34	7/6	30	12/27	40	3/12	27	10/10	31	6/21	70	3/25	44	5/3	41	9/19
1955	42	7/31	34	4/23	40	12/3	35	4/18	32	5/2	49	5/27	47	7/30	45	3/22
1956	33	3/7	45	3/10	36	3/27	29	10/30	35	11/13*	42	4/12	47	5/12	42	3/11
1957	32	10/23	34	3/24	30	4/3	42	5/21	35	3/12	37	3/14	56	7/8	37	12/10
1958	35	4/6	38	4/23	35	4/5	26	4/1	36	11/17	43	11/18	42	2/24	34	5/25
1959	35	3/14*	42	3/26	26	5/9	33	8/3	36	9/26	38	7/8	45	4/5	42	3/15
1960	29	1/18	38	2/10	26	4/25	38	5/16	32	9/24*	50	11/15	32	11/29	38	3/21
1961	31	6/24	38	3/8	32	3/13	32	4/20	42	11/2	40	3/27	36	12/6	30	4/23
1962	36	11/4	32	5/10	29	2/18	35	4/8	33	3/28	40	11/20	50	6/7	31	7/25
1963	54	6/7	32	5/10	24	3/5	33	5/12	33	8/16	47	6/27	32	2/20	40	9/12
1964	36	11/20	29	1/11	25	9/15	27	9/20	41	5/6	48	4/13	46	9/23	57	7/27
1965	33	10/23	30	7/17	34	3/17	30	4/10	30	6/27*	52	6/27	35	11/27	34	1/17
1966	27	3/23	26	9/14	31	12/28	25	1/12	46	4/19	30	3/4	35	10/10	38	7/10
1967	29	2/23	28	2/5	36	4/16	28	1/7*	33	1/7	42	4/14	34	1/24	36	11/17
1968	30	3/31	30	3/12	28	12/19	32	12/22	34	5/7	36	4/7	54	6/10	35	2/9
1969	32	7/23	34	4/18	21	4/14	32	4/8	29	9/29	37	10/9	28	2/11	33	4/21
1970	27	1/29	25	6/2	38	4/19	38	4/22	31	11/25	37	12/1	36	11/22	56	7/31
1971	33	7/16	34	8/13	30	3/18	27	5/23	30	4/8	40	2/27	32	4/2	39	1/29
1972	29	3/1	37	9/19	29	11/1	35	9/6	31	1/8	35	9/16	33	3/7	41	8/14
1973	29	1/28	34	4/9	25	4/30	28	11/20	33	4/21	31	6/16	31	5/10	46	7/9
1974	34	2/22	26	4/3	26	5/16	26	7/2	34	4/21	37	4/12	27	3/21	35	1/31
1975	27	11/13	34	6/14	36	3/27	31	9/1	29	11/29*	43	1/11	42	6/13	33	11/12
1976	43	7/30	33	4/25	19	4/23	25	1/15	27	3/19	30	3/23	27	2/15	34	2/1

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	36	6/5	28	10/1	26	3/17	27	10/7	26	3/12	36	5/21	43	7/16	33	1/26
1978	31	5/13	26	3/25	24	3/24	30	4/18	26	6/11	34	3/18	28	4/11	32	1/26
1979	29	1/14	28	6/30	38	4/11	26	7/3	29	5/17	43	6/20	28	11/1	44	4/5

(*) Published Values

1956	S	30
1959	N	29
1960	S	29
1965	S	26
1967	SE	26
1975	S	26

Sheridan, Wyoming (1958-1977)

Anemometer Height	Begin Date	End Date
38'	---	6/9/58
42'	6/10/58	9/2/64
20'	9/ 3/64	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1958	29	8/30	21	4/11	24	6/14	52	6/8	24	9/9	52	7/9	53	7/12	73	11/4
1959	43	3/1	26	7/2	20	5/1	30	10/1	26	8/7	42	9/7	40	8/26	63	5/9
1960	37	6/15	22	8/13	17	5/22	35	5/16	27	7/13	45	4/14	47	11/24	63	8/15
1961	26	7/17	19	11/15	31	8/23	37	5/28	28	7/7	49	6/10	40	8/8	62	3/1
1962	23	5/1	24	4/19	23	9/19	37	6/12	17	6/13	49	6/3	54	11/20	63	1/6
1963	32	5/27	15	5/10	24	4/17	34	7/7	37	9/10	66	3/28	50	6/6	59	2/1
1964	23	3/27	16	3/20	19	5/14	35	7/18	20	6/21	56	1/21	56	6/5	63	2/5
1965	30	5/17	28	7/27	18	7/24	30	6/16	16	8/14	61	1/4	39	1/27	50	10/5
1966	33	3/21	19	8/30	17	3/14	31	5/9	13	8/1	47	1/6	36	10/30	56	4/2
1967	40	3/6	13	6/25	15	1/23	37	8/6	33	1/20	47	3/29	38	2/3	57	1/15
1968	33	4/11	17	4/12	17	3/2	32	5/24	19	8/3	36	7/19	37	8/18	43	7/30
1969	26	6/19	15	9/10	14	1/6	33	4/23	20	12/14	49	1/7	31	7/21	61	7/3
1970	26	3/8	12	2/27	18	4/13	32	7/27	34	7/6	56	12/2	34	1/26	49	12/3
1971	30	11/4	14	5/3	20	4/22	28	5/4	20	12/17	45	6/18	28	1/23	43	4/10
1972	21	8/15	17	4/13	24	9/1	33	4/24	34	8/9	50	3/6	40	7/27	43	1/21
1973	26	8/2	21	8/19	17	3/21	29	9/20	14	3/30	42	11/12	36	3/14	59	8/18
1974	22	8/26	26	9/26	17	10/19	34	7/10	23	7/30	52	1/15	45	3/28	51	5/27
1975	20	9/10	20	8/17	17	4/24	25	3/11	26	6/27	36	4/25	30	1/17	47	1/24
1976	28	7/21	22	9/26	26	4/6	30	4/12	35	6/10	43	2/8	30	12/26	43	5/14
1977	40	1/18	18	7/25	17	7/8	37	5/9	33	5/7	31	10/29	40	8/22	51	11/26

Note: Dates of occurrence of "hidden" values and values published in LCD's not shown for this station.

APPENDIX II

LARGEST YEARLY FASTEST-MILE WIND SPEEDS OBTAINED FROM LOCAL CLIMATOLOGICAL DATA (LCD) SUMMARIES (IN MILES PER HOUR).

Notes:

1. The data listed in this appendix have not been corrected for "hidden values" (see note 1, appendix I). Values are listed as published in Local Climatological Data (LCD) summaries.

2. Dates of occurrence of the wind speed, and anemometer elevations for each station are also included in this appendix.

Atlanta, Georgia (1950-1956, 1964-1975)

Anemometer Height	Begin Date	End Date
72'	---	12/06/61
20'	12/07/61	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	23	6/27	34	9/7	32	8/1	29	8/31	49	3/27	49	5/1	32	11/26	42	11/20
1951	38	6/8	23	9/1	26	11/6	36	6/24	40	6/28	36	11/1	38	5/10	44	12/15
1952	49	9/2	26	2/25	33	10/8	42	4/13	41	3/10	40	8/13	32	3/13	44	12/10
1953	36	12/9	70	6/10	34	2/14	34	4/29	35	4/6	40	1/24	44	3/24	54	6/13
1954	48	8/28	28	6/11	32	10/7	56	7/2	36	2/16	40	3/31	43	2/3	47	10/15
1955	32	4/26	28	8/6	34	1/18	51	7/4	36	3/21	50	4/24	43	6/7	41	2/11
1956	29	7/4	30	4/10	27	2/1	26	2/15	43	3/7	68	4/15	51	3/16	52	4/7
1964	29	1/10	35	3/19	28	2/15	42	7/22	24	3/9	34	3/4	42	1/20	38	4/23
1965	32	7/3	29	10/19	25	9/18	25	5/20	25	7/18	32	3/17	34	11/27	29	2/21
1966	52	7/15	30	3/14	25	1/21	31	2/10	23	12/9	30	4/8	34	11/28	40	7/7
1967	18	5/27	30	5/22	24	9/22	24	12/10	27	1/26	23	12/18	33	5/15	35	6/18
1968	18	1/23	26	8/19	28	12/1	27	11/28	29	5/25	39	12/28	29	10/26	35	6/2
1969	17	4/24	34	6/29	29	12/7	69	3/23	29	8/19	30	6/20	29	3/7	33	2/3
1970	29	11/23	27	7/22	27	10/11	33	4/19	23	11/20	25	3/12	31	7/4	33	6/13
1971	30	7/15	34	7/14	34	12/3	30	2/22	32	1/4	63	5/12	44	6/16	34	3/15
1972	31	12/10	38	6/19	28	10/27	25	7/19	27	7/31	32	7/4	44	8/20	39	2/19
1973	31	5/11	25	6/20	28	4/7	34	8/31	27	12/26	41	3/16	42	5/19	31	11/28
1974	30	7/26	47	7/20	34	12/15	25	7/17	31	2/21	31	6/1	48	3/20	44	5/3
1975	27	7/14	33	8/27	29	4/4	42	9/23	34	6/15	49	12/31	44	8/26	29	1/20

Peoria, Illinois (1950-1979)

Anemometer Height	Begin Date	End Date
50'	---	9/30/59
20'	10/1/59	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	35	4/23	43	4/24	30	4/8	45	11/16	54	1/25	61	5/5	55	4/11	43	3/1
1951	42	7/16	36	2/20	29	3/11	35	12/3	45	11/13	45	2/26	50	9/26	37	2/6
1952	50	6/13	50	6/12	27	2/14	31	3/12	42	11/25	56	11/26	44	2/8	47	5/5
1953	66	6/13	31	3/3	42	4/29	40	4/8	56	3/21	52	4/15	52	2/26	75	7/5
1954	34	6/20	41	12/29	34	3/12	33	2/20	43	4/30	55	5/31	47	7/20	52	5/3
1955	34	7/23	27	5/16	29	4/11	29	4/14	43	7/4	50	5/26	43	6/4	50	3/22
1956	32	5/22	31	2/27	31	3/27	30	4/27	35	9/21	56	5/28	65	8/13	43	4/14
1957	43	2/26	29	7/16	40	3/25	27	11/15	38	5/14	52	3/14	47	11/8	41	12/10
1958	31	4/7	30	3/9	26	2/27	24	4/23	45	11/17	60	10/9	44	11/8	45	11/9
1959	34	5/28	33	3/27	28	3/26	30	3/30	32	9/20	42	7/21	60	9/26	49	6/30
1960	36	7/23	40	2/9	17	3/31	37	4/1	29	7/25	33	4/2	38	11/29	47	5/24
1961	29	7/4	26	2/2	30	12/16	32	11/21	27	5/7	43	3/27	40	4/16	34	4/1
1962	30	5/5	37	5/10	26	2/18	29	8/23	34	5/11	38	11/23	40	4/30	36	11/22
1963	31	4/30	28	1/10	26	4/22	32	11/22	30	3/29	38	4/19	38	3/19	41	7/19
1964	38	3/4	35	1/12	32	4/20	26	4/26	34	5/6	43	4/13	56	11/20	38	3/5
1965	32	12/24	29	1/15	25	3/16	27	4/23	34	4/10	42	4/11	51	9/14	35	11/16
1966	30	7/9	30	4/3	26	12/27	30	3/17	32	2/9	35	12/28	40	10/10	40	3/31
1967	32	1/27	31	1/26	29	5/30	37	1/25	37	1/16	39	10/24	40	2/15	46	2/23
1968	20	1/6	30	3/12	20	5/25	37	3/14	35	12/12	38	10/17	40	12/5	39	12/4
1969	30	5/10	30	4/18	38	3/24	29	3/23	30	6/26	29	5/31	43	6/25	33	4/22
1970	20	2/18	44	5/13	20	3/17	35	4/18	30	5/29	40	4/29	42	12/3	40	7/3
1971	25	6/24	34	8/22	20	6/15	32	3/18	35	3/31	47	12/15	42	1/25	46	8/14
1972	27	4/16	32	4/7	23	5/7	21	3/3	30	6/14	30	5/2	37	1/24	34	3/12
1973	29	1/28	23	3/16	29	4/9	33	4/19	34	4/20	33	5/1	28	4/16	54	6/16
1974	29	4/8	31	4/7	28	5/1	28	4/2	30	4/11	35	4/14	49	7/14	36	2/22
1975	25	12/6	23	2/16	31	3/27	28	11/11	40	5/19	34	3/24	50	7/23	29	5/14
1976	24	1/7	29	4/25	28	2/29	26	1/18	29	4/17	34	3/12	43	3/4	41	2/1

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	26	3/21	26	4/28	17	10/29	32	2/23	28	11/19	44	3/30	36	5/4	43	1/28
1978	34	7/9	28	3/24	30	4/2	22	12/18	28	6/23	34	4/18	31	1/26	33	4/23
1979	32	7/13	26	2/17	19	4/1	25	6/8	30	4/12	30	6/20	32	3/13	41	4/4

Minneapolis, Minnesota (1950-1979)

Anemometer Height	Begin Date	End Date
74'	---	2/10/52
73'	2/11/52	9/17/58
21'	9/18/58	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	33	3/7	30	4/29	38	3/26	40	3/6	37	8/24	52	5/5	51	5/6	48	6/26
1951	47	9/21	30	3/13	47	3/3	34	5/18	42	12/3	37	9/12	92	7/20	42	10/30
1952	40	4/13	40	1/22	42	2/19	32	12/3	34	11/17	33	10/3	43	10/16	52	2/10
1953	47	6/8	47	4/29	45	4/24	54	6/3	40	5/20	36	5/19	45	6/20	41	2/27
1954	35	6/3	34	5/2	46	3/12	41	3/24	35	4/23	45	6/7	38	3/25	45	11/23
1955	37	7/3	35	12/3	39	6/1	34	7/11	43	6/28	40	6/30	42	7/7	39	10/12
1956	36	11/15	34	7/7	42	5/10	42	10/24	45	10/13	38	6/29	37	6/23	47	12/11
1957	31	5/15	30	5/13	34	4/3	43	5/20	37	5/21	33	6/21	43	4/20	49	7/14
1958	44	4/6	40	4/5	43	4/4	36	4/1	37	6/4	60	11/17	45	4/28	53	8/4
1959	31	3/6	30	2/10	29	3/26	31	5/31	40	5/1	42	5/5	33	5/12	38	4/5
1960	33	4/23	27	4/1	36	4/25	27	4/10	33	8/8	30	4/13	33	2/8	42	4/11
1961	32	5/15	30	5/25	20	5/14	29	4/20	40	5/11	36	10/11	33	2/26	34	6/18
1962	50	7/21	25	2/18	39	8/6	33	7/18	28	10/15	37	5/22	47	7/24	41	6/28
1963	37	4/29	32	6/7	28	5/10	32	6/28	34	3/15	45	4/3	29	5/13	35	2/20
1964	36	8/22	29	11/11	25	4/2	36	5/5	34	10/1	44	5/6	52	4/13	61	5/23
1965	31	7/23	23	12/24	26	5/14	28	4/10	31	5/6	34	5/9	38	5/24	45	2/21
1966	40	3/23	56	7/10	29	4/26	28	4/27	35	5/22	38	6/11	37	10/22	39	3/31
1967	63	8/6	25	1/5	39	4/30	30	5/30	32	6/3	45	3/30	31	8/2	56	6/30
1968	42	4/23	27	3/2	26	4/19	33	4/20	35	6/20	40	3/17	33	3/27	44	2/16
1969	42	4/21	28	7/14	18	2/15	35	6/29	31	6/28	37	6/26	54	7/13	30	4/20
1970	35	7/1	24	7/19	18	2/15	29	6/16	36	11/24	40	7/1	45	4/29	42	11/22
1971	32	1/4	33	7/7	26	4/21	32	6/4	32	4/10	42	10/30	40	10/31	42	2/27
1972	26	6/2	36	12/30	29	4/6	30	4/12	27	5/23	38	9/6	39	1/12	33	10/16
1973	32	5/15	44	4/9	27	4/30	38	6/18	30	2/11	36	7/6	22	9/5	33	5/9
1974	49	6/20	28	6/29	24	4/7	26	7/10	30	10/11	38	4/20	30	5/11	40	7/2
1975	35	11/9	36	3/27	38	3/23	34	4/27	34	10/26	40	5/23	32	5/20	50	7/23
1976	37	3/12	27	4/9	25	1/1	27	3/28	36	4/16	34	3/23	34	3/20	37	1/28

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	29	6/5	30	4/27	24	3/12	32	11/9	39	6/27	33	9/08	41	11/20	38	5/31
1978	34	6/16	29	4/18	28	5/7	26	12/28	27	10/29	36	8/15	39	4/12	34	3/31
1979	30	6/10	37	3/3	32	4/11	32	8/4	31	6/14	37	6/19	34	5/14	38	4/5

Kansas City, Missouri (1950-1979)

Anemometer Height	Begin Date	End Date
75'	---	4/27/55
90'	4/28/55	5/26/60
78'	5/27/60	7/10/63
22'	7/11/63	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	31	4/3	34	3/18	33	11/1	35	3/6	57	3/26	68	5/5	50	3/7	56	7/12
1951	47	8/8	40	7/16	29	6/27	38	11/12	42	1/22	60	6/23	56	10/21	65	8/31
1952	35	4/4	32	8/21	29	5/9	38	4/30	40	3/30	70	3/12	49	1/19	68	6/21
1953	37	6/25	27	4/17	31	3/29	43	12/5	50	3/21	47	4/24	61	4/15	38	5/26
1954	47	6/9	36	2/15	26	11/30	42	9/28	47	2/14	54	4/26	36	6/11	56	5/18
1955	36	7/18	27	6/25	24	2/17	29	4/27	49	3/10	54	5/6	47	5/23	36	1/12
1956	33	7/11	33	5/6	22	5/24	34	3/31	36	5/11	47	4/3	56	5/22	49	6/27
1957	49	8/20	35	3/24	33	5/16	31	5/20	35	4/19	42	1/21	40	3/14	56	6/22
1958	34	5/30	45	7/11	26	7/13	34	7/13	34	10/20	56	11/17	40	7/15	34	4/24
1959	49	6/11	28	5/29	36	8/31	28	5/22	34	5/3	45	6/27	52	5/30	47	7/31
1960	32	2/10	28	2/9	17	2/2	29	10/14	34	10/25	56	8/16	43	11/28	43	6/30
1961	30	5/25	43	6/13	37	5/5	42	5/7	34	10/12	43	5/14	29	3/6	42	7/5
1962	33	2/4	29	6/12	32	2/17	46	9/14	32	5/14	48	5/28	50	7/11	49	7/5
1963	30	9/28	37	6/28	26	4/10	30	6/3	36	6/12	55	3/16	40	3/19	42	2/20
1964	47	7/1	28	1/12	33	4/3	30	11/11	34	5/6	34	3/6	34	6/22	34	11/20
1965	43	6/29	38	6/30	21	6/13	38	5/21	36	5/8	35	9/20	33	6/5	31	3/17
1966	29	4/1	44	8/17	28	5/20	40	6/14	34	5/15	25	10/3	30	3/4	34	7/5
1967	30	3/16	24	5/31	23	6/27	33	10/23	33	3/24	39	1/24	37	6/11	41	6/7
1968	29	3/12	26	3/7	15	1/10	42	12/12	32	4/12	43	12/22	31	5/15	32	4/23
1969	31	3/23	31	3/24	20	10/19	46	6/21	32	6/25	54	7/9	47	6/26	45	4/4
1970	31	2/2	30	6/16	23	8/4	38	4/18	34	11/30	35	4/22	40	9/3	38	2/18
1971	33	2/12	35	4/13	24	4/26	30	6/28	37	3/31	35	3/18	37	5/19	42	4/27
1972	31	1/3	34	11/13	27	11/12	21	10/30	34	4/10	46	12/30	45	4/30	42	9/13
1973	34	12/4	32	3/9	29	1/20	33	4/19	32	6/1	42	3/14	27	3/11	70	7/2
1974	29	2/6	32	4/7	42	3/10	40	3/8	35	10/4	40	5/13	30	8/31	38	3/29
1975	28	9/11	20	7/28	31	3/26	32	11/29	35	4/27	41	12/14	15	6/12	38	3/24
1976	50	12/28	25	4/11	24	2/28	34	4/17	35	4/16	37	1/25	23	12/22	38	2/21
1977	30	1/27	35	7/21	25	3/11	33	2/22	31	11/20	36	4/20	23	8/31	35	1/28
1978	26	4/14	28	3/24	28	5/6	35	9/13	24	6/22	33	3/31	26	4/23	46	7/8
1979	33	9/6	26	2/8	33	4/10	31	4/11	36	10/20	35	10/21	32	6/21	34	12/7

St. Louis, Missouri (1959-1979)

Anemometer Height	Begin Date	End Date
82'	---	9/28/62
20'	9/29/62	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1959	25	3/21	32	3/26	24	3/28	34	9/27	27	4/17	32	4/29	38	3/15	30	4/3
1960	28	12/20	22	3/2	36	5/6	43	2/9	45	4/1	34	11/28	42	4/17	45	6/30
1961	37	7/25	26	3/20	30	3/17	38	3/12	41	11/2	36	3/27	38	3/8	29	4/6
1962	23	2/27	36	3/11	25	2/17	38	8/31	38	8/3	33	5/25	33	3/12	38	6/24
1963	32	2/20	31	8/9	22	3/18	30	3/11	30	4/18	35	3/29	45	6/13	40	3/20
1964	28	3/9	36	4/3	37	4/4	60	6/29	40	3/6	38	4/27	45	4/21	45	6/14
1965	32	8/26	21	1/28	24	9/16	33	5/26	33	5/25	38	4/5	36	7/9	54	8/27
1966	32	7/28	24	4/26	27	4/11	32	5/11	28	3/2	37	10/9	32	3/18	48	8/15
1967	38	7/25	26	7/27	22	4/25	32	10/29	28	8/18	45	10/24	38	2/15	37	2/23
1968	27	3/2	42	3/12	26	12/21	39	12/18	29	12/11	38	3/8	41	12/22	34	5/4
1969	34	4/18	33	7/3	37	3/23	29	4/8	29	6/25	45	10/10	34	3/20	40	7/9
1970	29	7/15	37	6/14	29	4/18	42	5/29	33	5/11	29	5/1	39	1/28	34	9/9
1971	27	12/17	32	2/21	19	5/10	40	3/18	34	3/31	42	12/15	38	3/15	38	1/26
1972	26	9/7	23	8/20	29	3/26	29	1/8	29	3/6	32	3/31	37	1/24	40	2/18
1973	43	6/18	24	3/19	31	1/21	42	4/20	40	12/4	38	4/9	40	4/10	32	6/26
1974	28	2/24	23	7/20	26	2/21	38	4/3	30	4/2	50	6/9	47	8/31	33	5/12
1975	25	8/5	34	7/5	29	3/27	36	11/29	32	12/14	40	3/24	40	5/30	41	8/29
1976	25	12/28	27	5/15	24	1/1	36	2/21	32	5/5	38	3/12	33	10/21	32	2/1
1977	32	7/21	26	6/9	20	6/21	36	3/28	33	12/16	42	5/4	41	1/26	40	8/7
1978	42	7/26	27	3/24	34	11/26	30	6/25	29	8/16	42	4/18	41	1/26	39	4/23
1979	33	2/25	34	4/11	20	2/17	37	10/30	28	5/8	31	5/26	34	4/5	40	3/14

Albany, New York (1950-1979)

Anemometer Height	Begin Date	End Date
41'	---	1/7/62
20'	1/7/63	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	37	4/6	30	9/11	70	11/25	29	1/28	49	5/10	35	9/25	52	3/15	52	1/11
1951	30	3/11	26	5/24	30	3/14	32	3/30	33	4/22	23	4/4	42	2/7	52	1/21
1952	37	6/26	38	4/15	26	6/24	26	12/4	30	5/12	21	9/2	57	1/18	45	3/11
1953	36	10/29	31	7/15	13	7/11	32	4/10	33	4/16	28	12/15	43	2/27	71	2/15
1954	30	2/16	26	8/5	24	6/14	42	10/15	31	10/16	17	12/8	49	4/8	43	3/20
1955	30	5/16	24	4/27	33	10/14	22	4/29	29	8/14	22	6/20	45	3/27	45	12/25
1956	31	1/9	34	4/8	14	11/2	27	4/29	34	11/21	18	8/18	38	1/30	43	2/25
1957	47	4/2	20	10/26	22	7/3	42	12/20	37	11/8	34	11/19	49	1/23	40	2/10
1958	40	1/22	31	3/20	28	2/28	30	2/24	29	6/1	11	2/11	42	2/25	36	2/8
1959	29	3/27	21	5/4	26	10/24	29	5/31	38	2/3	32	4/28	57	2/19	49	1/7
1960	37	9/12	39	2/18	24	4/17	26	4/11	28	9/2	33	7/3	46	2/14	36	11/4
1961	26	10/21	26	6/14	25	4/13	21	11/23	48	9/2	21	9/26	33	1/18	41	2/14
1962	26	11/3	32	8/29	38	9/28	26	11/10	32	12/6	30	5/24	38	1/15	41	4/25
1963	27	10/29	25	1/11	14	11/29	30	4/17	27	11/23	37	9/12	45	4/4	35	1/28
1964	24	5/14	14	8/3	15	10/17	34	3/4	28	3/5	31	4/3	42	1/10	35	12/31
1965	37	6/12	25	12/25	22	3/5	32	2/25	30	11/16	31	1/27	36	1/9	40	10/31
1966	21	7/6	22	7/19	23	1/23	16	11/2	30	10/31	33	4/21	34	9/30	44	6/6
1967	28	12/15	28	5/26	16	5/24	24	5/7	30	1/25	33	10/19	30	2/24	45	2/16
1968	26	11/12	28	5/26	12	11/7	23	7/31	29	4/4	19	1/30	43	2/17	38	3/24
1969	24	4/18	13	5/14	11	7/23	30	4/9	28	10/16	36	8/8	42	1/8	30	2/9
1970	23	9/14	25	8/10	21	3/22	32	1/28	29	3/20	26	4/2	42	4/3	30	7/4
1971	24	4/18	22	9/16	11	3/19	30	7/13	26	12/27	26	3/8	49	3/5	57	6/8
1972	29	2/19	22	5/22	16	5/19	21	4/13	29	1/9	20	10/8	41	2/4	42	2/20
1973	26	2/10	24	3/27	18	10/29	24	5/1	33	3/17	25	12/5	34	10/14	35	1/29
1974	24	11/21	22	4/24	20	3/30	30	12/8	33	3/23	26	4/22	38	3/17	47	3/10
1975	20	10/30	19	1/20	26	6/29	20	3/4	32	4/18	27	1/26	34	4/3	45	1/30
1976	30	8/10	22	3/16	10	10/30	22	1/13	33	3/27	20	4/15	40	10/9	48	12/13

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	33	5/9	17	5/26	16	11/7	21	2/27	29	4/11	21	3/9	38	1/28	42	4/8
1978	34	2/6	18	5/16	14	5/5	25	5/14	26	4/11	32	1/26	33	1/9	39	12/17
1979	22	4/19	28	1/24	15	10/1	20	5/26	32	3/24	44	9/14	42	4/6	38	12/17

New York (LaGuardia), New York (1947-1979)

Anemometer Height	Begin Date	End Date
83'	---	4/11/62
20'	4/12/62	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1947	47	9/30	56	10/31	52	2/21	60	11/8	31	1/30	63	3/25	48	2/4	59	12/9
1948	38	1/18	66	10/6	34	1/5	37	4/1	34	11/7	42	6/30	30	12/6	56	7/6
1949	49	5/24	47	10/18	26	1/21	40	8/29	31	3/22	47	4/6	34	1/5	56	12/29
1950	45	12/4	38	12/10	40	3/22	68	11/25	33	11/4	38	12/15	61	1/14	51	12/25
1951	49	10/7	43	11/1	43	3/14	45	12/21	34	3/21	34	10/24	43	4/15	59	2/8
1952	42	1/3	42	3/1	59	11/22	45	9/1	31	5/25	47	5/12	36	5/21	56	3/11
1953	68	11/7	38	5/26	52	7/23	50	3/13	34	1/24	39	4/22	42	2/27	56	2/10
1954	50	8/31	50	12/14	26	2/16	66	10/15	34	6/1	40	8/25	42	3/21	59	7/14
1955	56	8/19	42	8/12	56	10/14	54	8/13	35	2/6	38	3/6	56	1/7	52	5/5
1956	64	1/7	54	3/16	54	4/7	30	4/11	32	11/21	32	5/9	57	2/25	52	12/29
1957	45	12/5	42	12/4	25	4/22	51	12/26	45	11/8	35	6/29	37	4/6	56	1/23
1958	43	4/1	68	1/14	37	3/27	33	1/22	31	4/21	38	11/28	38	2/9	63	8/10
1959	43	12/22	48	3/27	27	5/22	38	10/24	38	4/2	42	12/7	38	11/2	63	1/5
1960	38	8/23	70	9/12	33	2/25	35	2/11	32	7/27	39	2/19	45	3/1	50	12/16
1961	50	9/21	59	4/13	31	8/21	26	4/17	28	6/25	49	2/25	40	11/28	52	2/26
1962	31	2/10	43	3/6	35	11/10	33	12/6	35	1/14	32	12/7	29	1/17	54	12/31
1963	34	10/30	48	11/7	31	5/10	32	12/8	32	3/26	26	2/20	59	4/4	42	1/24
1964	29	2/28	59	4/13	19	4/21	42	1/9	28	1/25	43	4/3	38	1/10	42	1/21
1965	34	12/26	32	1/23	17	2/10	28	2/7	37	2/25	30	11/27	37	10/7	37	4/12
1966	24	12/4	40	1/23	24	1/2	35	11/28	33	3/24	26	7/28	51	1/31	45	12/24
1967	37	5/25	41	1/27	29	9/11	25	5/18	32	8/19	37	10/18	45	2/16	48	4/3
1968	37	8/7	67	11/12	34	1/14	42	5/29	40	5/3	39	8/9	43	12/5	42	2/21
1969	52	7/3	45	2/10	23	7/24	27	12/10	30	4/1	34	6/2	30	3/25	45	2/10
1970	29	10/17	36	11/4	47	12/17	26	10/22	38	2/2	35	2/22	45	4/2	37	11/5
1971	30	4/18	56	11/25	37	3/3	40	8/28	40	2/13	34	1/30	44	1/26	47	3/4
1972	34	11/9	57	11/8	22	5/22	39	2/13	35	5/15	36	2/3	54	2/4	49	12/17
1973	30	2/11	40	10/29	24	10/28	26	6/6	38	3/17	34	3/18	38	7/5	35	1/29

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1974	28	8/30	55	12/2	23	11/12	31	12/8	32	9/28	29	2/19	38	2/23	42	3/10
1975	34	12/22	32	9/25	33	1/6	26	5/15	28	5/12	40	2/25	45	1/30	38	3/20
1976	18	10/27	52	8/9	21	9/30	47	10/9	36	12/7	40	1/14	48	2/2	41	12/13
1977	25	7/16	54	12/5	29	9/25	29	3/4	29	3/13	54	1/28	42	1/10	45	5/6
1978	26	4/28	39	1/26	27	5/24	22	5/13	29	1/8	36	7/27	43	12/17	36	4/14
1979	32	8/12	34	2/26	43	1/24	34	3/24	52	9/6	45	8/10	41	4/6	37	12/19

Cape Hatteras, North Carolina (1917-1956)

Anemometer Height	Begin Date	End Date
50'	---	12/11/46
47'	12/12/46	4/09/55
56'	4/10/55	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1917	63	12/30	47	9/16	24	11/29	38	12/8	49	10/30	43	4/5	44	12/10	56	2/5
1918	46	4/27	34	2/16	51	4/26	31	4/9	27	6/25	76	1/15	47	12/2	44	3/10
1919	47	2/10	38	2/9	30	2/22	35	3/8	34	5/20	37	3/9	41	2/15	43	3/27
1920	47	11/28	41	1/31	21	8/27	40	12/8	29	4/13	47	9/30	47	3/13	44	12/9
1921	41	3/10	38	1/27	35	10/26	43	10/31	29	3/24	47	12/18	44	8/3	46	10/8
1922	51	2/7	40	5/27	21	12/20	30	5/17	32	7/20	41	3/7	32	3/5	54	8/3
1923	46	3/31	35	3/29	24	9/27	34	1/24	40	3/16	34	1/1	54	3/7	54	8/22
1924	38	4/22	35	2/26	30	10/27	44	3/21	47	9/30	60	5/29	40	11/29	60	8/26
1925	47	10/31	41	4/20	32	12/1	47	11/12	29	10/2	32	10/25	54	8/14	50	3/27
1926	49	3/11	40	8/5	32	1/30	54	11/16	43	1/18	40	3/31	46	10/25	47	5/10
1927	44	12/1	41	12/3	15	5/8	40	10/12	22	12/7	40	12/5	49	6/14	62	3/2
1928	47	12/7	40	5/8	17	10/8	42	9/18	40	4/27	47	11/24	49	2/18	43	6/22
1929	52	3/9	38	9/21	25	2/6	47	10/22	33	12/19	45	10/2	47	5/3	49	3/7
1930	57	9/12	36	1/11	21	8/1	50	4/6	38	3/7	33	4/7	42	3/26	56	12/17
1931	47	1/14	32	12/8	17	5/16	38	3/22	34	1/5	34	8/11	59	6/8	56	3/3
1932	51	9/7	54	11/26	32	9/15	40	1/1	34	12/17	47	3/22	68	3/6	46	2/5
1933	41	4/12	76	8/22	21	4/28	49	2/10	28	2/7	35	3/25	47	5/16	91	9/16
1934	40	2/9	40	3/10	21	6/8	31	4/9	40	12/1	34	2/26	35	12/19	73	9/8
1935	46	4/15	41	3/9	29	12/13	27	7/7	33	9/5	53	9/6	46	4/9	55	8/7
1936	80	9/17	39	2/21	22	10/15	44	3/17	42	10/16	48	1/19	53	3/12	91	9/18
1937	72	1/29	37	1/26	22	8/31	47	4/25	42	10/22	30	4/22	49	2/16	70	7/31
1938	42	4/2	31	5/30	13	4/11	45	10/24	47	12/26	42	4/9	57	11/24	66	9/21
1939	57	5/2	34	10/15	24	3/11	34	9/27	31	1/30	40	2/26	43	1/31	77	7/14
1940	53	10/15	50	9/30	26	8/3	45	1/23	38	8/15	35	7/13	31	7/1	66	1/24
1941	45	5/3	30	9/21	17	5/31	34	3/7	40	3/8	30	7/18	42	2/18	56	5/23
1942	42	2/24	33	10/11	24	10/13	45	3/2	33	1/31	37	3/9	45	12/2	45	3/22
1943	45	12/29	28	4/29	18	10/15	26	5/24	42	4/12	37	5/3	40	2/7	49	4/13

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1944	40	4/28	31	3/19	22	9/17	40	8/1	49	2/14	34	12/11	43	11/30	56	8/18
1945	54	12/10	30	12/4	40	6/25	29	9/18	38	11/22	31	12/31	47	6/2	56	5/11
1946	57	8/12	45	3/21	27	10/8	38	11/2	45	7/6	34	12/13	45	7/1	42	2/24
1947	42	3/8	40	9/25	26	10/7	36	11/12	38	12/15	42	2/6	52	3/28	42	2/4
1948	42	12/26	65	2/1	34	10/5	24	12/3	47	5/7	43	2/14	38	6/8	36	1/5
1949	40	3/7	30	6/30	26	8/17	32	6/16	36	9/20	42	11/1	40	1/1	73	8/24
1950	37	5/8	32	9/6	24	3/7	43	11/24	38	2/23	45	3/1	40	3/9	40	11/17
1951	34	10/18	38	10/3	30	4/8	37	12/20	38	11/7	47	12/15	47	11/3	38	2/8
1952	35	9/22	31	7/1	22	9/11	45	11/21	28	7/8	47	8/20	32	12/11	50	2/27
1953	48	11/6	29	2/2	29	6/17	77	8/13	66	8/14	47	2/15	40	3/8	50	10/22
1954	38	4/9	43	5/14	40	5/13	56	10/15	36	3/20	56	8/31	40	1/12	78	8/30
1955	43	1/19	62	8/11	50	8/17	68	9/19	68	2/11	47	9/20	46	3/22	47	11/20
1956	52	4/12	52	9/26	23	2/6	29	10/17	45	4/16	54	2/28	43	12/29	43	1/4

Cleveland, Ohio (1950-1976)

Anemometer Height	Begin Date	End Date
56'	---	1/29/56
88'	1/30/56	6/24/59
20'	6/25/59	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	32	8/17	29	11/14	31	7/19	29	3/7	35	5/22	59	1/14	47	8/1	42	1/4
1951	43	5/3	27	6/7	26	6/8	29	4/8	36	11/13	42	10/7	65	4/28	40	7/5
1952	37	6/26	34	5/5	20	10/10	30	2/3	28	6/25	56	1/22	56	6/8	35	4/10
1953	36	6/30	23	11/6	21	3/2	32	3/23	56	6/8	49	4/10	63	3/4	45	3/18
1954	34	7/3	25	3/12	26	12/29	41	2/20	29	2/15	58	4/7	46	3/3	42	8/16
1955	42	8/13	26	8/12	20	2/4	27	4/5	34	5/22	68	3/22	52	11/16	42	3/16
1956	50	3/5	34	3/4	24	2/11	28	1/28	47	11/15	61	3/1	65	2/25	60	8/5
1957	40	6/16	35	1/10	27	4/3	36	4/4	54	11/8	68	5/14	54	6/18	39	2/14
1958	34	6/5	33	5/6	26	1/25	35	4/5	45	8/14	59	4/24	51	11/5	47	11/29
1959	41	3/27	26	4/20	24	7/18	37	3/5	40	5/11	70	3/15	56	4/3	60	4/29
1960	42	9/1	26	12/12	28	8/20	29	2/10	37	2/26	30	3/21	37	3/22	31	11/30
1961	26	12/24	29	6/14	32	3/13	24	3/27	34	4/16	40	5/15	32	5/2	43	2/25
1962	38	3/6	23	11/9	17	2/18	24	3/11	31	3/12	37	1/7	37	11/24	37	8/20
1963	29	11/29	25	9/13	16	12/23	30	3/19	57	8/3	42	3/17	40	6/10	33	4/30
1964	26	6/15	38	1/13	23	2/6	29	7/28	33	4/13	48	3/5	43	8/3	31	10/21
1965	29	12/25	34	1/16	25	8/6	42	3/17	36	4/11	40	1/26	43	7/9	38	5/26
1966	32	6/9	33	4/26	32	1/2	25	9/20	36	10/15	40	3/23	35	4/1	29	1/30
1967	29	3/15	30	5/7	19	5/24	23	12/10	32	6/29	35	10/27	53	2/15	31	10/19
1968	35	12/15	38	3/12	23	1/14	32	5/27	34	4/23	40	12/05	35	4/8	26	6/11
1969	40	7/4	35	12/31	27	11/19	27	12/7	38	3/20	35	1/6	30	1/1	32	2/4
1970	26	8/31	26	3/29	29	4/19	30	1/28	34	4/20	45	3/26	42	12/3	40	9/22
1971	34	2/8	26	3/3	17	3/18	22	2/22	27	1/4	49	12/15	42	1/26	36	8/10
1972	29	11/14	31	4/7	28	4/21	30	1/12	39	8/26	47	7/18	40	1/25	33	6/22
1973	24	4/26	29	4/8	19	3/6	32	3/11	34	4/16	37	6/4	34	3/17	29	1/29
1974	26	2/10	34	3/12	16	2/6	40	4/3	27	4/2	45	4/4	50	5/11	32	5/5
1975	25	3/8	33	10/17	25	5/31	28	11/27	31	6/17	45	4/19	40	1/29	37	4/3
1976	26	4/11	30	4/4	12	3/8	21	5/29	40	4/21	49	2/18	33	2/17	30	2/1

Chattanooga, Tennessee (1941-1974)

Anemometer Height	Begin Date	End Date
66'	---	7/27/48
54'	7/28/48	5/30/64
20'	5/31/64	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1941	25	2/3	25	3/18	12	9/21	34	6/9	28	3/10	40	10/29	40	7/31	36	3/4
1942	32	12/16	27	9/28	29	6/2	27	12/27	48	6/28	48	7/27	48	2/6	46	6/13
1943	41	8/14	28	3/21	23	7/26	36	11/7	39	4/13	26	1/15	52	4/12	50	1/19
1944	30	7/3	26	10/27	17	6/29	27	3/11	35	4/11	37	3/29	44	4/15	50	3/27
1945	33	7/6	39	12/4	22	8/23	32	6/14	39	5/15	40	4/16	35	2/7	38	11/21
1946	34	3/30	36	4/16	25	9/2	40	1/5	42	3/6	72	2/13	62	8/10	44	2/24
1947	27	11/11	32	8/2	28	8/24	25	6/6	32	9/21	52	2/6	82	3/24	74	3/25
1948	28	4/15	31	8/4	32	3/22	37	5/6	38	3/14	47	4/12	62	3/2	35	1/4
1949	32	9/18	62	6/5	15	6/8	22	12/25	32	3/22	36	8/2	45	5/24	34	4/28
1950	24	1/16	28	9/7	21	6/3	33	8/31	45	3/27	42	7/18	38	2/22	38	11/20
1951	42	12/14	23	9/27	34	3/29	38	8/21	39	3/23	53	6/7	46	9/6	63	5/2
1952	30	1/18	31	10/20	17	7/16	52	4/4	35	6/20	44	2/29	63	2/29	48	7/30
1953	28	3/19	30	7/7	19	7/8	46	8/16	40	4/15	42	12/9	50	5/7	67	6/13
1954	29	5/4	26	9/20	27	8/8	22	7/14	32	3/25	41	2/26	35	6/1	49	2/16
1955	26	12/30	35	7/28	24	7/18	30	4/13	41	2/20	50	4/24	47	3/22	45	2/1
1956	34	5/28	40	1/8	17	6/13	32	8/13	35	7/20	41	3/3	57	2/20	46	8/18
1957	24	2/19	25	2/20	17	7/19	32	4/1	35	4/3	57	9/14	57	4/8	34	1/10
1958	23	1/8	23	10/1	45	8/9	20	3/8	34	8/23	52	2/28	47	4/24	35	6/20
1959	25	3/21	22	2/6	23	7/17	23	9/5	30	4/1	59	1/21	37	8/25	33	1/16
1960	30	12/11	34	12/12	13	6/8	27	5/6	31	2/11	45	6/24	33	3/19	43	6/16
1961	24	10/3	26	5/10	19	5/11	23	8/22	45	11/23	36	3/8	45	4/28	33	1/19
1962	28	12/29	27	1/28	17	10/21	10	12/25	35	6/25	22	2/28	42	3/21	42	4/13
1963	38	7/6	24	5/23	17	6/6	23	7/26	26	3/9	36	5/17	34	3/19	41	11/30
1964	30	8/4	23	9/13	20	4/12	26	7/16	35	3/9	54	3/4	41	3/29	35	3/30
1965	25	12/6	22	7/25	17	8/23	20	9/23	25	12/24	33	2/24	30	2/25	43	5/18
1966	29	7/6	38	7/15	23	6/27	27	2/9	34	2/10	26	3/23	33	7/29	30	4/8
1967	36	4/24	26	3/15	15	4/11	21	7/1	29	1/6	31	5/31	26	3/6	30	2/24

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1968	31	8/5	22	11/8	13	7/10	26	11/28	26	8/20	34	12/28	29	3/22	29	8/2
1969	23	2/3	27	7/9	13	4/12	29	11/19	30	4/17	31	8/15	29	6/23	33	5/10
1970	26	2/25	25	10/16	19	10/24	27	2/1	30	3/7	35	8/18	25	4/2	33	6/20
1971	30	8/11	30	7/14	26	6/28	25	6/29	25	2/19	33	2/22	29	3/15	27	3/20
1972	29	6/6	26	8/20	21	7/3	28	12/31	29	1/24	28	1/13	21	3/2	36	1/25
1973	23	2/8	33	7/4	13	4/7	29	1/21	30	1/22	38	6/15	28	4/9	32	11/27
1974	20	4/6	31	7/3	16	8/21	30	2/21	27	4/4	37	4/8	36	1/28	33	5/30

Nashville, Tennessee (1950-1974)

Anemometer Height	Begin Date	End Date
42'	---	4/27/62
25'	4/28/62	7/ 3/63
39'	7/ 4/63	8/ 9/64
36'	8/10/64	1/11/65
25'	1/12/65	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	30	1/15	32	9/5	14	9/6	32	1/17	38	3/27	29	4/29	34	4/20	47	5/29
1951	34	1/20	23	6/25	15	3/10	32	3/28	32	11/13	39	5/22	57	6/22	46	6/29
1952	25	11/3	29	10/20	21	8/4	42	11/25	29	4/12	37	2/8	40	3/13	71	6/30
1953	37	7/6	20	11/6	28	6/16	31	12/3	31	12/6	29	5/17	38	4/15	73	6/13
1954	42	7/7	29	12/6	23	8/30	24	1/26	34	2/15	34	2/20	38	2/27	42	8/8
1955	30	2/11	26	8/4	20	4/10	22	7/20	28	4/23	27	2/28	52	4/24	41	3/1
1956	36	5/21	26	6/13	25	2/8	29	4/3	29	2/24	29	3/1	46	4/7	47	2/17
1957	42	7/9	20	5/3	23	3/24	33	10/15	35	4/4	33	3/11	40	11/18	39	4/8
1958	38	11/28	22	3/7	19	7/25	26	2/27	42	4/5	32	1/21	61	4/27	45	4/24
1959	28	2/18	19	4/12	17	6/14	21	5/25	42	1/20	42	3/14	42	3/6	36	11/26
1960	51	6/29	17	9/16	19	7/17	34	5/6	36	2/9	32	1/18	40	5/20	42	5/26
1961	22	10/3	16	3/7	33	3/18	33	11/3	26	5/6	43	5/8	42	7/21	34	3/9
1962	32	6/24	20	6/6	22	6/27	23	1/5	41	2/23	36	1/15	37	3/21	49	2/27
1963	26	6/10	27	5/10	12	3/10	25	8/28	34	3/4	38	3/11	40	7/29	52	7/7
1964	29	8/8	20	10/4	17	6/28	35	11/28	27	12/2	35	12/24	42	3/4	47	6/15
1965	29	8/27	34	7/17	22	4/4	28	1/22	35	12/24	40	1/26	30	3/17	47	7/2
1966	26	4/13	33	7/10	19	4/28	35	2/9	37	2/10	30	3/19	26	4/5	50	7/7
1967	20	4/3	24	5/22	15	6/8	28	4/14	34	12/21	36	2/15	30	5/7	31	3/6
1968	22	1/23	29	3/11	16	5/26	32	12/27	34	4/7	42	4/4	28	12/23	30	5/25
1969	18	7/10	33	6/29	12	2/27	29	11/18	29	1/29	38	6/24	42	7/27	36	6/23
1970	19	9/18	21	3/29	15	10/11	38	3/3	32	11/9	38	4/13	36	1/29	34	4/6
1971	28	11/21	35	6/19	17	9/6	34	2/22	42	12/10	36	12/15	25	3/16	31	4/13
1972	37	8/12	29	5/19	14	6/19	29	3/1	30	5/14	39	4/16	43	7/2	46	4/7
1973	19	2/9	26	7/22	22	7/23	33	11/20	33	11/25	37	12/26	31	4/2	35	7/4
1974	20	3/24	32	7/15	20	7/7	36	2/21	35	4/3	36	2/22	35	3/29	35	3/30

Richmond, Virginia (1951-1979)

Anemometer Height	Begin Date	End Date
66'	---	1/10/61
20'	1/11/61	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1951	33	5/23	34	7/18	33	3/29	33	2/21	33	12/20	45	2/1	33	3/7	41	7/19
1952	31	2/11	30	6/30	28	12/31	50	8/31	33	4/13	32	7/23	26	8/16	52	6/29
1953	26	5/30	27	5/15	26	9/27	30	12/4	29	11/22	32	1/24	31	2/27	34	6/9
1954	26	12/6	27	4/28	26	4/9	68	10/15	30	3/19	31	8/5	29	5/9	45	7/15
1955	34	8/12	34	8/17	27	8/16	34	8/18	29	6/23	37	3/22	23	4/24	56	7/23
1956	25	1/10	33	9/26	19	3/7	31	5/15	30	2/27	39	5/23	29	7/5	33	4/20
1957	26	5/18	26	3/25	26	3/8	40	12/26	50	6/28	38	4/6	30	4/9	33	1/10
1958	26	9/27	33	12/29	39	1/25	33	4/22	26	12/5	26	2/28	27	5/28	34	6/13
1959	27	7/1	31	8/24	29	3/5	35	10/24	40	1/21	33	1/22	33	3/27	31	3/17
1960	31	6/29	28	4/21	30	9/10	24	9/11	34	1/3	27	10/16	32	8/7	38	12/12
1961	34	7/8	22	9/18	27	3/21	34	6/14	29	4/2	38	2/25	28	4/1	33	4/28
1962	45	5/8	25	1/30	17	7/4	27	11/9	36	5/24	31	12/7	29	3/31	30	5/26
1963	29	2/8	23	8/24	17	3/31	20	7/28	24	9/29	26	3/4	37	3/6	34	4/4
1964	31	2/16	32	8/26	18	8/3	19	7/21	23	3/4	40	3/10	27	3/17	34	7/4
1965	35	6/30	29	1/17	19	3/4	27	3/17	22	5/23	32	2/25	29	11/27	34	2/22
1966	34	7/15	22	6/11	22	1/22	26	7/5	24	6/7	40	2/13	34	4/1	29	1/23
1967	27	4/28	26	4/7	15	3/26	18	6/4	17	11/11	38	7/20	30	5/15	33	3/11
1968	26	12/14	28	5/27	21	1/13	22	6/12	28	3/22	40	12/28	25	2/20	32	12/5
1969	34	6/18	30	6/8	14	5/15	25	11/2	22	6/14	32	4/5	29	6/24	33	2/3
1970	29	2/25	25	4/15	17	3/25	20	12/16	25	2/2	29	1/29	36	4/2	31	1/21
1971	29	7/11	26	4/6	17	10/1	24	8/1	17	2/11	40	2/13	31	3/19	43	1/26
1972	26	2/26	26	1/14	24	5/26	35	11/26	25	3/22	29	2/13	28	3/5	40	4/15
1973	26	2/17	35	5/3	22	3/27	23	1/22	19	4/16	33	4/10	35	3/17	47	7/11
1974	24	4/23	21	5/4	29	12/1	17	2/19	13	5/9	35	3/16	23	2/23	31	5/12
1975	22	2/9	30	3/17	20	7/11	18	5/3	17	3/22	34	4/19	34	6/5	40	1/1
1976	26	4/11	25	1/17	20	7/22	22	6/20	21	1/26	31	1/14	34	3/13	33	3/21
1977	30	5/8	35	7/9	17	4/19	32	3/4	17	3/12	32	2/25	29	4/5	38	11/10

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1978	24	4/27	27	6/27	17	2/25	19	8/2	22	1/8	42	1/26	29	4/1	30	6/3
1979	28	12/17	23	12/14	20	4/13	26	4/4	30	9/5	34	9/21	33	11/22	43	8/8

Lander, Wyoming (1950-1979)

Anemometer Height	Begin Date	End Date
31'	---	6/19/58
32'	6/20/58	---

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1950	26	7/25	29	1/25	17	11/1	34	3/16	49	3/5	70	10/6	56	8/13	40	5/19
1951	38	3/27	36	11/4	56	8/5	31	5/12	58	6/5	59	1/15	57	2/2	43	9/18
1952	36	4/3	33	7/12	22	4/20	36	4/14	47	4/28	49	9/8	50	5/29	30	5/26
1953	45	3/11	40	4/24	17	7/16	30	7/18	50	12/20	61	1/09	54	2/17	47	11/23
1954	29	5/16	29	9/28	18	1/4	23	6/18	56	1/17	59	1/3	54	1/14	43	10/11
1955	22	6/7	33	6/23	30	7/21	33	3/1	47	5/14	72	4/15	66	12/21	54	1/23
1956	26	4/8	31	4/27	30	7/1	45	2/13	29	7/13	52	8/2	56	12/10	38	5/22
1957	26	3/17	26	2/27	30	5/3	25	5/7	42	7/22	77	2/11	50	3/9	49	12/7
1958	35	10/6	29	6/16	24	7/30	34	6/18	40	7/18	66	12/7	75	11/4	38	5/22
1959	37	3/3	42	11/15	24	1/5	35	7/31	33	5/1	57	7/6	50	10/9	45	11/23
1960	24	8/7	32	2/21	18	4/3	19	1/10	42	5/21	61	6/20	45	4/10	34	7/12
1961	33	9/2	30	3/17	20	5/3	30	8/1	38	10/21	57	4/18	65	4/23	56	12/21
1962	23	3/23	33	12/22	15	3/29	26	3/22	43	7/17	52	6/3	56	8/27	42	12/7
1963	40	3/1	29	6/14	21	1/8	26	4/18	43	5/11	56	1/31	38	4/15	34	8/17
1964	24	3/19	28	5/8	14	8/21	26	8/16	40	7/22	73	12/22	47	11/26	46	12/23
1965	32	5/5	26	6/4	33	6/9	31	6/16	29	4/1	56	12/28	59	1/27	52	4/2
1966	33	3/22	32	4/2	34	7/13	21	7/21	43	5/21	66	1/8	61	1/6	34	3/31
1067	31	8/6	29	12/24	20	3/30	23	7/11	42	3/19	73	1/22	50	10/22	51	10/23
1968	38	4/13	29	3/30	20	7/26	29	1/10	36	4/1	43	3/13	50	7/29	42	10/26
1969	25	3/23	32	1/8	16	4/8	22	9/9	57	4/6	57	1/7	50	4/20	43	9/29
1970	29	11/18	29	7/19	16	6/3	18	5/22	50	4/26	60	11/24	54	5/27	34	2/1
1971	32	5/4	29	8/16	16	9/19	30	12/26	31	6/3	61	3/13	47	2/10	34	12/20
1972	28	4/25	30	3/3	18	11/29	31	6/8	36	5/25	80	3/6	50	1/2	45	12/2
1973	27	12/25	26	5/18	16	3/28	17	10/30	34	12/1	45	7/6	45	6/17	40	8/3
1974	27	5/9	22	3/19	22	4/19	29	4/23	44	3/7	70	1/30	43	12/21	34	7/20
1975	39	11/24	25	8/14	21	7/14	29	7/2	34	6/24	47	6/25	43	12/2	32	2/7
1976	23	10/17	28	4/26	32	4/5	25	8/17	40	8/15	45	4/28	40	5/31	33	1/30

Wind Direction

YR	N		NE		E		SE		S		SW		W		NW	
1977	19	6/16	31	5/14	18	1/19	35	5/9	45	7/3	50	3/7	42	7/2	47	6/5
1978	32	7/17	28	5/16	23	12/21	35	4/16	38	7/2	46	12/4	44	12/24	44	4/11
1979	21	7/30	28	6/16	24	5/24	26	6/17	33	4/18	61	12/4	47	9/26	28	12/5

APPENDIX III

LARGEST YEARLY FASTEST-MILE WIND SPEEDS AT 10 METERS ABOVE GROUND CORRESPONDING TO DATA EXTRACTED FROM ORIGINAL RECORDS (IN MILES PER HOUR).

Notes:

1. Also included in this appendix are the following sample statistics:

   $\bar{v}$ = sample mean

   $s(v)$ = sample standard deviation

   v_{max} = sample maximum

   v_{min} = sample minimum

   Sample statistics are provided for the entire record as well as for the first and the second half of the record.

Tuscon, Arizona (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	40	51	38	35	46	41	46	25	51
1951	39	37	55	38	35	32	34	24	55
1952	27	20	59	46	42	35	32	40	59
1953	20	18	43	34	36	32	33	42	43
1954	43	7	37	41	44	33	32	26	44
1955	31	44	39	42	35	36	31	44	44
1956	26	31	35	37	28	35	36	34	37
1957	22	18	38	42	31	30	35	40	42
1958	20	28	44	35	35	30	35	27	44
1959	28	50	46	53	58	41	49	45	58
1960	33	39	31	58	52	37	53	47	58
1961	37	32	58	54	35	43	37	36	58
1962	27	36	43	43	39	36	58	32	58
1963	25	37	37	45	39	38	56	31	56
1964	20	37	42	38	58	41	33	31	58
1965	18	45	41	58	44	42	51	37	58
1966	22	39	43	51	39	45	29	43	51
1967	32	41	42	41	42	40	43	35	43
1968	27	26	56	37	34	33	32	27	56
1969	29	60	42	39	40	38	47	29	60
1970	30	52	39	47	38	38	66	34	66
1971	38	38	49	79	42	40	47	34	79
1972	52	30	47	50	36	47	50	39	52
1973	28	30	29	40	40	42	36	38	42
1974	41	42	48	42	32	41	41	39	48
1975	37	37	44	38	50	41	40	50	50
1976	32	38	32	40	32	40	42	33	42
1977	29	48	44	47	37	39	42	38	48
1978	28	39	30	42	44	39	34	41	44
1979	31	28	33	39	34	34	42	31	42
Period $\bar{v}$	30.4	35.9	42.1	44.4	39.9	38.0	41.4	35.7	51.5
1950- $s(v)$	7.8	11.3	7.9	9.3	7.3	4.3	9.2	6.7	9.0
1979 v_{max}	52	60	59	79	58	47	66	50	79
v_{min}	18	7	29	34	28	30	29	24	37
Period $\bar{v}$	29.2	32.3	43.0	42.7	40.9	36.0	40.0	34.9	51.0
1950- $s(v)$	7.7	12.4	8.4	7.4	9.2	4.2	9.6	7.7	7.7
1964 v_{max}	43	51	59	58	58	43	58	47	59
v_{min}	20	7	31	34	28	30	31	24	37
Period $\bar{v}$	31.6	39.5	41.3	46.0	38.9	39.9	42.8	36.5	52.1
1965- $s(v)$	8.1	9.2	7.6	10.8	5.0	3.6	9.0	5.8	10.4
1979 v_{max}	52	60	56	79	50	47	66	50	79
v_{min}	18	26	29	37	32	33	29	27	42

Sacramento, California (1950-1979)

	Wind Direction								
YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	33	16	14	57	42	39	23	23	57
1951	25	24	17	44	52	41	24	23	52
1952	26	3	17	59	55	27	28	29	59
1953	44	28	17	59	41	27	30	31	59
1954	28	10	17	50	37	32	24	30	50
1955	30	28	12	49	36	38	33	36	49
1956	33	20	25	32	44	35	26	30	44
1957	25	8	15	31	30	36	22	34	36
1958	25	9	14	36	33	28	21	30	36
1959	33	33	31	44	27	48	32	28	48
1960	27	19	15	34	31	34	34	31	34
1961	14	29	22	24	35	38	42	44	44
1962	14	5	36	37	37	46	34	35	46
1963	24	12	27	36	37	32	37	37	37
1964	35	24	8	35	33	41	25	40	41
1965	38	8	8	37	32	35	31	46	46
1966	37	19	8	36	29	40	25	32	40
1967	35	36	13	64	37	35	34	44	64
1968	42	20	7	33	19	35	32	27	42
1969	36	32	13	38	29	30	35	21	38
1970	37	11	8	25	36	38	32	25	38
1971	40	22	8	32	31	32	34	36	40
1972	37	10	9	29	25	35	32	41	41
1973	32	10	8	34	27	34	31	29	34
1974	46	7	15	32	30	32	29	27	46
1975	47	12	8	37	27	27	27	41	47
1976	32	14	11	27	27	30	11	37	37
1977	35	15	10	33	29	29	25	35	35
1978	26	8	12	42	24	32	19	35	42
1979	24	14	10	40	20	29	11	33	40
Period $\bar{v}$	32.0	16.9	14.5	38.9	33.1	34.5	28.1	33.0	44.1
1950- $s(v)$	8.1	9.1	7.3	10.3	8.1	5.4	7.0	6.5	8.0
1979 v_{max}	47	36	36	64	55	48	42	46	64
v_{min}	14	3	7	24	19	27	11	21	34
Period $\bar{v}$	27.7	17.9	19.1	41.8	38.0	36.1	29.0	32.1	46.1
1950- $s(v)$	7.7	9.6	7.6	10.9	7.8	6.4	6.2	5.8	8.4
1964 v_{max}	44	33	36	59	55	48	42	44	59
v_{min}	14	3	8	24	27	27	21	23	34
Period $\bar{v}$	36.3	15.9	9.9	35.9	28.1	32.9	27.2	33.9	42.0
1965- $s(v)$	6.3	8.7	2.4	9.1	5.0	3.6	7.8	7.2	7.2
1979 v_{max}	47	36	15	64	37	40	35	46	64
v_{min}	24	7	7	25	19	27	11	21	34

Denver, Colorado (1951-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1951	36	41	37	32	41	33	33	42	42
1952	36	36	27	41	31	36	36	51	51
1953	37	49	25	34	40	33	37	47	49
1954	43	43	31	35	34	32	33	43	43
1955	47	38	30	36	39	26	34	45	47
1956	35	36	23	42	45	38	47	35	47
1957	40	33	24	50	37	28	39	38	50
1958	34	36	24	40	36	33	36	43	43
1959	35	33	26	29	38	41	34	43	43
1960	32	26	31	31	32	34	43	54	54
1961	41	37	31	37	39	40	54	48	54
1962	40	42	26	37	37	47	53	46	53
1963	46	32	36	47	39	52	48	43	52
1964	43	39	34	38	36	48	44	39	48
1965	33	34	28	47	40	62	43	44	62
1966	41	47	38	32	37	36	36	50	50
1967	34	39	32	40	42	44	47	47	47
1968	38	38	28	32	32	40	43	42	43
1969	44	32	23	41	32	51	43	47	51
1970	41	44	22	29	30	41	40	44	44
1971	46	39	32	52	47	41	37	42	52
1972	36	41	24	32	40	47	47	42	47
1973	48	38	29	34	38	37	36	54	54
1974	42	42	31	33	38	39	38	48	48
1975	47	48	26	31	41	38	48	50	50
1976	59	38	29	33	46	42	38	56	59
1977	52	42	27	32	42	41	46	50	52
1978	47	42	33	60	46	44	46	43	60
1979	38	38	26	39	31	38	44	33	44
Period $\bar{v}$	41.1	38.7	28.7	37.8	38.1	40.1	41.5	45.1	49.4
1951- $s(v)$	6.3	5.1	4.3	7.5	4.7	7.5	5.9	5.4	5.2
1979 v_{max}	59	49	38	60	47	62	54	56	62
v_{min}	32	26	22	29	30	26	33	33	42
Period $\bar{v}$	38.9	37.2	28.9	37.8	37.4	37.2	40.8	44.1	48.3
1951- $s(v)$	4.6	5.6	4.6	5.9	3.6	7.6	7.4	5.0	4.3
1964 v_{max}	47	49	37	50	45	52	54	54	54
v_{min}	32	26	23	29	31	26	33	35	42
Period $\bar{v}$	43.1	40.1	28.5	37.8	38.8	42.7	42.1	46.1	50.5
1965- $s(v)$	7.0	4.3	4.2	8.9	5.6	6.6	4.3	5.7	5.9
1979 v_{max}	59	48	38	60	47	62	48	56	62
v_{min}	33	32	22	29	30	36	36	33	43

Jacksonville, Florida (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	42	45	63	33	52	43	31	24	63
1951	28	37	24	30	36	34	33	26	37
1952	49	35	29	40	34	34	36	37	49
1953	39	38	37	28	40	45	28	26	45
1954	31	31	32	24	40	31	38	28	40
1955	28	40	31	27	27	31	37	28	40
1956	32	32	33	38	43	31	29	31	43
1957	27	31	31	35	40	24	30	24	40
1958	24	34	27	28	25	29	37	28	37
1959	30	31	24	28	33	32	30	25	33
1960	31	40	36	26	29	36	34	30	40
1961	36	31	30	34	29	42	38	28	42
1962	31	37	47	34	24	37	35	31	47
1963	54	45	39	35	24	27	44	45	54
1964	72	42	68	39	42	36	38	33	72
1965	31	39	50	31	34	37	42	39	50
1966	26	35	42	31	32	34	32	31	42
1967	24	66	31	25	26	34	30	41	66
1968	45	36	28	34	29	40	30	28	45
1969	51	45	27	24	31	32	31	35	51
1970	31	31	34	38	34	30	32	31	38
1971	26	36	24	38	31	48	37	52	52
1972	27	33	43	35	34	42	34	48	48
1973	30	47	45	30	29	38	53	37	53
1974	27	38	26	48	37	37	37	37	48
1975	68	30	26	30	30	59	38	37	68
1976	29	32	22	30	32	44	46	46	46
1977	29	29	24	29	23	34	36	31	36
1978	27	27	21	26	32	43	37	42	43
1979	35	37	27	32	30	34	35	35	37
Period $\bar{v}$	35.3	37.0	34.0	32.0	32.7	36.6	35.6	33.8	46.8
1950- $s(v)$	12.3	7.6	11.5	5.5	6.5	7.0	5.5	7.5	9.8
1979 v_{max}	72	66	68	48	52	59	53	52	72
v_{min}	24	27	21	24	23	24	28	24	33
Period $\bar{v}$	36.9	36.6	36.7	31.9	34.5	34.1	34.5	29.6	45.5
1950- $s(v)$	12.8	5.0	13.1	5.0	8.3	5.9	4.4	5.5	10.5
1964 v_{max}	72	45	68	40	52	45	44	45	72
v_{min}	24	31	24	24	24	24	28	24	33
Period $\bar{v}$	33.7	37.4	31.3	32.1	30.9	39.1	36.7	38.0	48.2
1965- $s(v)$	12.0	9.6	9.3	6.1	3.4	7.4	6.3	6.8	9.3
1979 v_{max}	68	66	50	48	37	59	53	52	68
v_{min}	24	27	21	24	23	30	30	28	36

Boise, Idaho (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	25	24	22	52	22	40	46	52	52
1951	28	22	16	39	52	37	46	35	52
1952	18	16	22	44	26	39	42	43	44
1953	23	4	20	39	38	31	44	51	51
1954	17	9	16	34	36	40	50	44	50
1955	26	29	15	40	38	37	37	40	40
1956	32	8	28	40	34	32	42	38	42
1957	24	12	22	30	44	27	46	40	46
1958	38	15	44	42	35	42	44	28	44
1959	14	17	30	42	36	34	30	42	42
1960	32	13	33	56	38	43	32	31	56
1961	19	29	32	34	32	42	33	33	42
1962	19	24	38	32	29	42	38	33	42
1963	24	19	29	62	19	42	37	36	62
1964	19	21	31	40	32	44	31	34	44
1965	14	19	28	39	30	34	34	40	40
1966	19	10	28	36	24	50	36	38	50
1967	29	26	36	37	36	32	38	33	38
1968	27	27	26	37	44	29	26	47	47
1969	26	33	28	33	33	46	38	38	46
1970	16	18	34	42	38	47	44	50	50
1971	27	34	32	41	27	38	39	49	49
1972	11	14	26	47	41	41	41	44	47
1973	23	10	27	52	47	42	32	47	52
1974	19	9	33	42	38	56	31	41	56
1975	16	24	31	47	44	44	28	47	47
1976	21	34	32	42	29	41	37	51	51
1977	19	16	26	31	30	40	41	47	47
1978	14	27	26	36	19	38	32	47	47
1979	32	23	19	37	28	31	34	44	44
Period $\bar{v}$	22.4	19.5	27.7	40.8	34.0	39.4	37.6	41.4	47.3
1950- $s(v)$	6.5	8.3	6.7	7.4	8.0	6.4	6.1	6.6	5.4
1979 v_{max}	38	34	44	62	52	56	50	52	62
v_{min}	11	4	15	30	19	27	26	28	38
Period $\bar{v}$	23.9	17.5	26.5	41.7	34.1	38.1	39.9	38.7	47.3
1950- $s(v)$	6.6	7.5	8.5	8.9	8.2	5.1	6.3	6.9	6.3
1964 v_{max}	38	29	44	62	52	44	50	52	62
v_{min}	14	4	15	30	19	27	30	28	40
Period $\bar{v}$	20.9	21.6	28.8	39.9	33.9	40.6	35.4	44.2	47.4
1965- $s(v)$	6.2	8.7	4.3	5.6	8.1	7.4	5.0	5.2	4.5
1979 v_{max}	32	34	36	52	47	56	44	51	56
v_{min}	11	9	19	31	19	29	26	33	38

Louisville, Kentucky (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	26	21	14	30	44	48	41	37	48
1951	26	24	25	39	48	49	38	32	49
1952	29	20	25	51	38	49	49	37	51
1953	34	26	20	40	40	52	49	44	52
1954	29	23	21	29	48	49	32	49	49
1955	22	38	29	35	48	44	28	29	48
1956	32	22	17	29	42	43	50	44	50
1957	26	24	22	37	40	35	49	36	49
1958	20	25	15	48	32	30	29	32	48
1959	24	19	21	36	32	37	38	27	38
1960	22	19	36	29	40	33	29	38	40
1961	28	23	19	32	38	37	48	39	48
1962	47	27	20	29	39	33	43	33	47
1963	48	22	32	28	39	31	44	40	48
1964	44	27	30	24	52	39	49	34	52
1965	34	29	21	14	34	39	42	34	42
1966	33	24	37	29	30	31	34	67	67
1967	44	30	19	38	34	36	30	63	63
1968	37	23	19	20	42	56	37	42	56
1969	31	22	28	39	31	38	42	44	44
1970	30	28	27	39	38	42	39	39	42
1971	33	30	20	40	33	38	61	42	61
1972	32	31	19	24	33	50	38	31	50
1973	32	29	26	33	40	50	42	32	50
1974	28	29	18	29	34	60	49	44	60
1975	29	31	36	32	37	47	44	38	47
1976	32	36	21	24	33	39	46	40	46
1977	33	22	34	29	43	42	41	37	43
1978	33	29	27	31	29	36	42	38	42
1979	34	24	28	37	34	38	42	37	42
Period $\bar{v}$	31.7	25.9	24.2	32.5	38.2	41.7	41.5	39.3	49.1
1950- $s(v)$	6.9	4.7	6.4	7.7	5.9	7.8	7.5	8.6	6.8
1979 v_{max}	48	38	37	51	52	60	61	67	67
v_{min}	20	19	14	14	29	30	28	27	38
Period $\bar{v}$	30.5	24.0	23.1	34.4	41.3	40.6	41.1	36.7	47.8
1950- $s(v)$	9.0	4.7	6.4	7.6	5.8	7.5	8.3	5.9	3.9
1964 v_{max}	48	38	36	51	52	52	50	49	52
v_{min}	20	19	14	24	32	30	28	27	38
Period $\bar{v}$	33.0	27.8	25.3	30.5	35.0	42.8	41.9	41.9	50.3
1965- $s(v)$	3.7	4.0	6.5	7.6	4.2	8.1	7.0	10.2	8.8
1979 v_{max}	44	36	37	40	43	60	61	67	67
v_{min}	28	22	18	14	29	31	30	31	42

Portland, Maine (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	30	33	59	41	41	32	43	44	59
1951	32	28	32	45	49	33	31	31	49
1952	52	37	43	40	37	24	26	36	52
1953	31	33	41	45	40	37	37	41	45
1954	29	40	62	42	30	29	37	54	62
1955	37	37	39	25	29	47	41	36	47
1956	40	40	31	31	31	34	29	31	40
1957	29	30	22	56	44	33	31	31	56
1958	40	34	29	23	28	36	26	29	40
1959	29	37	31	40	41	38	31	28	41
1960	38	32	35	56	35	33	21	23	56
1961	32	32	38	29	27	29	24	28	38
1962	31	31	40	39	26	38	34	34	40
1963	40	22	40	31	43	38	44	36	44
1964	32	32	26	37	30	31	29	39	39
1965	29	22	38	47	32	39	33	47	47
1966	32	44	32	37	26	31	34	37	44
1967	32	30	31	24	28	32	46	41	46
1968	29	27	30	34	28	33	44	38	44
1969	36	37	40	36	40	50	47	34	50
1970	63	22	34	34	29	39	33	42	63
1971	32	28	42	34	29	30	42	38	42
1972	41	37	38	47	40	31	36	47	47
1973	40	33	38	42	39	33	38	39	42
1974	32	30	32	29	42	33	46	48	48
1975	37	29	44	37	27	38	46	40	46
1976	40	26	20	31	37	32	46	57	57
1977	36	33	42	41	40	30	40	41	42
1978	30	36	34	53	43	32	40	48	53
1979	31	37	28	32	34	37	39	38	39
Period $\bar{v}$	35.4	32.3	36.4	37.9	34.8	34.4	36.4	38.5	47.3
1950- $s(v)$	7.4	5.4	8.9	8.7	6.6	5.2	7.4	7.8	7.1
1979 v_{max}	63	44	62	56	49	50	47	57	63
v_{min}	29	22	20	23	26	24	21	23	38
Period $\bar{v}$	34.8	33.2	37.9	38.7	35.4	34.1	32.3	34.7	47.2
1950- $s(v)$	6.4	4.7	11.0	9.8	7.2	5.3	7.0	7.7	8.0
1964 v_{max}	52	40	62	56	49	47	44	54	62
v_{min}	29	22	22	23	26	24	21	23	38
Period $\bar{v}$	36.0	31.4	34.9	37.2	34.3	34.7	40.7	42.3	47.3
1965- $s(v)$	8.5	6.1	6.4	7.6	6.1	5.3	5.1	6.0	6.3
1979 v_{max}	63	44	44	53	43	50	47	57	63
v_{min}	29	22	20	24	26	30	33	34	39

Detroit, Michigan (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	32	21	22	18	27	35	35	44	44
1951	30	25	20	20	28	47	30	36	47
1952	31	23	17	24	22	54	35	39	54
1953	31	30	22	25	23	45	41	40	45
1954	28	22	19	20	22	36	46	39	46
1955	47	23	16	22	22	47	40	38	47
1956	25	21	22	21	22	37	42	42	42
1957	26	24	23	27	21	35	37	35	37
1958	29	21	22	24	22	35	39	35	39
1959	33	31	21	21	31	40	36	36	40
1960	35	37	20	17	22	35	35	64	64
1961	29	22	22	16	22	31	34	30	34
1962	25	23	20	21	22	28	33	47	47
1963	34	22	18	24	21	35	36	50	50
1964	30	23	17	18	22	37	46	31	46
1965	28	23	18	19	26	35	45	38	45
1966	39	38	21	32	22	28	38	33	39
1967	38	29	27	24	31	58	43	36	58
1968	34	33	29	31	47	50	56	38	56
1969	37	34	30	38	26	40	42	39	42
1970	29	32	40	26	32	44	43	53	53
1971	33	26	30	22	37	50	56	56	56
1972	32	36	36	21	34	51	56	47	56
1973	30	31	29	26	39	50	38	38	50
1974	29	31	28	28	30	56	44	42	56
1975	30	36	29	28	39	58	49	42	58
1976	31	37	30	19	24	54	39	42	54
1977	42	36	37	28	28	42	62	41	62
1978	26	31	36	33	37	57	46	47	57
1979	36	33	27	27	37	40	52	62	62
Period $\bar{v}$	32.0	28.8	24.9	24.0	27.9	43.0	42.5	42.0	49.5
1950- $s(v)$	5.0	5.7	6.6	5.2	7.0	9.2	7.8	8.3	8.1
1979 v_{max}	47	38	40	38	47	58	62	64	64
v_{min}	25	21	16	16	21	28	30	30	34
Period $\bar{v}$	31.0	25.2	20.1	21.2	23.3	38.5	37.7	40.4	45.4
1950- $s(v)$	5.4	4.8	2.2	3.2	2.9	6.9	4.6	8.5	7.2
1964 v_{max}	47	37	23	27	31	54	46	64	64
v_{min}	25	21	16	16	21	28	30	30	34
Period $\bar{v}$	32.9	32.4	29.8	26.8	32.6	47.5	47.3	43.6	53.6
1965- $s(v)$	4.6	4.2	5.8	5.3	6.8	9.1	7.5	8.0	6.8
1979 v_{max}	42	38	40	38	47	58	62	62	62
v_{min}	26	23	18	19	22	28	38	33	39

Jackson, Mississippi (1950-1962, 1965-1975)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	31	20	36	33	42	25	33	55	55
1951	31	17	27	35	53	35	31	55	55
1952	36	24	35	43	63	32	29	47	63
1953	35	34	18	39	46	30	34	32	46
1954	33	37	29	39	29	39	34	52	52
1955	45	36	28	35	35	35	38	52	52
1956	30	33	37	28	34	28	31	35	37
1957	52	31	29	50	33	33	34	33	52
1958	33	29	34	32	29	23	39	37	39
1959	34	31	26	43	26	32	26	37	43
1960	37	35	24	30	28	35	33	39	39
1961	41	30	35	26	41	30	30	39	41
1962	38	30	25	33	31	33	35	58	58
1965	32	37	24	42	33	32	26	41	42
1966	33	20	23	43	43	27	29	50	50
1967	34	32	32	38	30	32	19	44	44
1968	42	19	32	32	44	31	29	36	44
1969	30	44	24	44	27	31	29	38	44
1970	27	26	26	34	40	34	29	40	40
1971	31	37	26	41	33	36	24	33	41
1972	38	37	19	37	33	37	21	46	46
1973	33	34	33	42	39	30	33	47	47
1974	34	26	24	41	43	38	28	38	43
1975	30	23	29	38	38	40	22	37	40
Period $\bar{v}$	35.0	30.1	28.1	37.4	37.2	32.4	29.8	42.5	46.4
1950-62 $s(v)$	5.6	6.9	5.2	5.8	8.8	4.2	5.1	7.8	6.8
1965-75 v_{max}	52	44	37	50	63	40	39	58	63
v_{min}	27	17	18	26	26	23	19	32	37
Period $\bar{v}$	36.5	30.0	29.8	36.1	38.3	31.4	32.7	42.8	47.8
1950- $s(v)$	6.5	6.3	5.7	7.0	11.3	4.5	3.6	8.8	8.2
1961 v_{max}	52	37	37	50	63	39	39	55	63
v_{min}	30	17	18	26	26	23	26	32	37
Period $\bar{v}$	33.5	30.4	26.4	38.8	36.2	33.4	27.0	42.3	44.9
1962 $s(v)$	4.1	7.8	4.3	4.1	5.7	3.7	4.8	7.0	5.1
1965-75 v_{max}	42	44	33	44	44	40	35	58	58
v_{min}	27	19	19	32	27	27	19	33	40

Great Falls, Montana (1950-1979)

	Wind Direction								
YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	25	28	19	19	51	56	55	40	56
1951	40	29	36	27	48	55	62	40	62
1952	24	28	36	24	43	56	49	44	56
1953	34	28	19	30	29	57	57	48	57
1954	21	25	25	19	41	60	61	42	61
1955	46	24	18	25	40	62	51	42	62
1956	28	21	27	28	32	69	52	43	69
1957	25	27	27	24	30	57	55	43	57
1958	29	29	17	14	40	63	59	45	63
1959	34	19	22	29	30	47	56	45	56
1960	32	32	19	32	30	75	56	47	75
1961	32	40	34	27	35	61	51	45	61
1962	45	23	23	23	29	66	47	35	66
1963	35	32	25	35	39	56	47	48	56
1964	41	32	24	26	37	48	51	41	51
1965	32	28	19	26	16	47	61	39	61
1966	32	23	28	32	38	56	47	45	56
1967	45	26	28	23	19	61	51	39	61
1968	34	32	20	37	28	51	51	51	51
1969	30	28	19	22	39	51	41	41	51
1970	22	34	17	17	32	63	32	39	63
1971	29	35	20	30	38	51	41	37	51
1972	25	28	28	29	24	54	44	35	54
1973	34	27	23	28	35	52	45	41	52
1974	56	34	27	24	37	60	40	35	60
1975	33	28	16	25	46	57	36	32	57
1976	32	28	34	52	34	51	41	38	52
1977	37	28	32	25	38	50	42	44	50
1978	30	32	19	15	35	48	60	46	60
1979	35	28	17	28	33	63	46	36	63
Period $\bar{v}$	33.2	28.5	23.9	26.5	34.9	56.8	49.6	41.5	58.3
1950- $s(v)$	7.8	4.4	6.1	7.2	7.7	7.3	7.8	4.5	5.9
1979 v_{max}	56	40	36	52	51	75	62	51	75
v_{min}	21	19	16	14	16	47	32	32	50
Period $\bar{v}$	32.7	27.8	24.7	25.5	36.9	59.2	53.9	43.2	60.5
1950- $s(v)$	7.7	5.2	6.4	5.4	7.0	7.3	4.7	3.4	6.1
1964 v_{max}	46	40	36	35	51	75	62	48	75
v_{min}	21	19	17	14	29	47	47	35	51
Period $\bar{v}$	33.7	29.3	23.1	27.5	32.8	54.3	45.2	39.9	56.1
1965- $s(v)$	8.1	3.4	5.9	8.7	8.0	5.3	8.0	5.0	4.8
1979 v_{max}	56	35	34	52	46	63	61	51	63
v_{min}	22	23	16	15	16	47	32	32	50

Omaha, Nebraska (1950-1976)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	52	43	29	43	49	40	32	63	63
1951	37	30	39	35	32	37	45	48	48
1952	39	36	31	34	37	34	51	43	51
1953	40	24	32	34	49	51	40	43	51
1954	40	26	36	34	34	36	39	46	46
1955	39	25	28	32	38	30	30	41	41
1956	48	42	30	36	32	48	33	42	48
1957	41	38	49	45	36	29	35	36	49
1958	42	29	36	34	46	29	31	35	46
1959	41	41	29	38	38	30	55	36	55
1960	46	41	33	34	38	46	35	41	46
1961	40	35	35	32	36	25	29	42	42
1962	46	36	35	37	34	38	35	47	47
1963	49	31	36	42	37	39	42	54	54
1964	47	31	37	41	37	36	51	70	70
1965	50	29	30	33	38	41	47	50	50
1966	56	38	29	31	30	36	31	47	56
1967	62	23	33	33	47	42	46	62	62
1968	43	31	21	42	48	39	36	72	72
1969	33	33	39	36	30	36	38	43	43
1970	42	30	42	32	36	47	37	52	52
1971	43	29	29	39	31	50	29	62	62
1972	37	37	30	31	39	50	42	52	52
1973	56	40	29	54	36	41	30	43	56
1974	39	49	40	39	40	42	33	44	49
1975	42	29	26	47	34	38	38	49	49
1976	46	40	28	46	64	58	18	44	64
Period $\bar{v}$	44.3	33.9	33.0	37.6	38.7	39.6	37.3	48.4	52.7
1950- $s(v)$	6.6	6.6	5.8	5.8	7.5	7.8	8.2	9.8	8.1
1976 v_{max}	62	49	49	54	64	58	55	72	72
v_{min}	33	23	21	31	30	25	18	35	41
Period $\bar{v}$	42.4	34.3	34.0	36.0	38.4	36.4	37.7	43.3	48.7
1950- $s(v)$	4.3	6.8	5.6	4.0	5.9	8.1	8.1	7.2	5.7
1962 v_{max}	52	43	49	45	49	51	55	63	63
v_{min}	37	24	28	32	32	25	29	35	41
Period $\bar{v}$	46.1	33.6	32.1	39.0	39.1	42.5	37.0	53.1	56.5
1963- $s(v)$	8.0	6.6	6.0	6.9	9.0	6.5	8.6	9.8	8.4
1976 v_{max}	62	49	42	54	64	58	51	72	72
v_{min}	33	23	21	31	30	36	18	43	43

Buffalo, New York (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	25	26	39	34	34	73	38	30	73
1951	23	22	23	27	34	53	42	36	53
1952	27	29	22	21	34	42	41	34	42
1953	24	30	21	22	37	55	40	47	55
1954	45	34	24	40	43	50	36	28	50
1955	18	38	22	20	33	51	46	29	51
1956	22	27	20	17	29	46	45	38	46
1957	29	26	21	34	30	52	54	37	54
1958	25	26	26	18	29	47	41	32	47
1959	26	28	21	32	36	52	54	30	54
1960	32	29	23	30	47	52	47	40	52
1961	32	29	22	34	31	48	42	34	48
1962	24	38	32	27	33	52	49	48	52
1963	32	32	32	29	32	58	52	32	58
1964	29	27	36	28	36	58	59	41	59
1965	30	29	32	36	29	57	52	33	57
1966	29	22	23	23	29	48	46	37	48
1967	32	32	32	22	42	63	50	32	63
1968	32	32	32	22	32	46	46	32	46
1969	27	39	20	26	36	49	40	33	49
1970	27	27	23	32	32	46	31	34	46
1971	32	22	27	21	34	58	46	34	58
1972	31	36	31	26	36	53	49	36	53
1973	32	36	32	19	34	38	42	40	42
1974	32	28	34	23	38	52	53	38	53
1975	34	31	27	23	36	52	52	34	52
1976	28	29	18	32	32	56	36	37	56
1977	29	38	30	44	31	56	43	38	56
1978	24	31	28	26	67	56	36	36	67
1979	27	37	24	27	32	54	37	34	54
Period $\bar{v}$	28.6	30.3	26.6	27.2	35.3	52.4	45.1	35.5	53.1
1950- $s(v)$	4.9	4.9	5.5	6.6	7.3	6.5	6.2	4.6	6.8
1979 v_{max}	45	39	39	44	67	73	59	48	73
v_{min}	18	22	18	17	29	38	36	28	42
Period $\bar{v}$	27.5	29.4	25.6	27.5	34.5	52.6	45.7	35.7	52.9
1950- $s(v)$	6.3	4.5	6.1	6.8	5.0	7.1	6.7	6.2	7.1
1964 v_{max}	45	38	39	40	47	73	59	48	73
v_{min}	18	22	20	17	29	42	36	28	42
Period $\bar{v}$	29.7	31.3	27.5	26.8	36.0	52.3	44.6	35.2	53.3
1965- $s(v)$	2.7	5.3	4.9	6.7	9.2	6.1	5.9	2.4	6.6
1979 v_{max}	34	39	34	44	67	63	53	40	67
v_{min}	24	22	18	19	29	38	36	32	42

Charlotte, North Carolina (1952-1978)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1952	38	22	26	39	35	42	14	28	42
1953	23	19	13	23	32	37	29	39	39
1954	38	51	18	32	32	36	28	48	51
1955	39	30	27	27	28	41	28	38	41
1956	42	37	21	20	38	46	42	32	46
1957	48	34	19	28	34	42	33	51	51
1958	28	36	14	32	17	48	36	50	50
1959	30	34	27	32	23	35	30	44	44
1960	39	50	24	29	24	36	28	42	50
1961	24	27	31	37	32	54	34	31	54
1962	28	40	20	21	31	38	43	66	66
1963	29	30	18	34	27	37	31	30	37
1964	28	37	29	18	29	38	29	31	38
1965	27	24	19	21	31	42	30	27	42
1966	27	36	21	19	24	41	29	32	41
1967	24	26	19	30	32	39	28	27	39
1968	38	31	21	23	32	42	31	29	42
1969	32	31	27	22	32	41	29	36	41
1970	27	22	28	21	29	38	27	38	38
1971	26	26	18	28	24	52	31	29	52
1972	30	26	19	28	33	38	32	33	38
1973	32	30	16	29	29	38	28	36	38
1974	32	27	37	26	23	40	37	32	40
1975	31	21	19	37	34	50	31	44	50
1976	26	27	30	32	34	38	38	50	50
1977	36	26	19	27	29	54	38	34	54
1978	30	32	20	34	33	56	33	32	56
Period $\bar{v}$	31.6	30.8	22.2	27.7	29.7	42.2	31.4	37.4	45.6
1952- $s(v)$	6.2	7.8	5.7	5.9	4.7	6.1	5.6	9.4	7.3
1978 v_{max}	48	51	37	39	38	56	43	66	66
v_{min}	23	19	13	18	17	35	14	27	37
Period $\bar{v}$	33.4	34.4	22.1	28.6	29.4	40.8	31.2	40.8	46.8
1952- $s(v)$	7.7	9.4	5.7	6.6	5.6	5.6	7.2	11.0	8.0
1964 v_{max}	48	51	31	39	38	54	43	66	66
v_{min}	23	19	13	18	17	35	14	28	37
Period $\bar{v}$	29.9	27.5	22.4	26.9	29.9	43.5	31.6	34.2	44.4
1965- $s(v)$	4.0	4.1	5.9	5.3	3.8	6.5	3.7	6.4	6.5
1978 v_{max}	38	36	37	37	34	56	38	50	56
v_{min}	24	21	16	19	23	38	27	27	38

Bismarck, North Dakota (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	53	44	47	53	31	31	44	53	53
1951	44	33	40	53	36	23	54	47	54
1952	46	32	53	33	32	53	53	53	53
1953	48	40	47	39	46	54	53	62	62
1954	46	31	61	36	47	26	53	53	61
1955	36	40	46	41	46	56	60	53	60
1956	40	27	38	49	43	37	54	58	58
1957	41	32	44	47	32	56	40	54	56
1958	49	43	36	41	28	38	47	63	63
1959	36	44	33	47	34	33	58	62	62
1960	62	41	40	45	31	33	50	62	62
1961	36	33	42	33	27	29	54	40	54
1962	56	33	40	33	38	28	47	52	56
1963	56	50	27	40	44	62	50	60	62
1964	38	58	48	44	32	40	48	54	58
1965	30	42	37	38	31	47	42	58	58
1966	39	46	29	41	29	37	40	58	58
1967	42	51	31	36	40	44	49	58	58
1968	50	36	41	44	34	28	50	51	51
1969	58	40	32	43	41	32	41	52	58
1970	34	46	32	33	37	33	52	56	56
1971	40	38	34	44	50	33	47	50	50
1972	33	34	32	40	32	52	44	66	66
1973	38	39	37	43	33	28	38	50	50
1974	28	39	34	37	44	34	50	47	50
1975	32	39	54	44	32	37	50	60	60
1976	42	42	33	40	34	44	48	52	52
1977	38	44	24	42	41	50	42	50	50
1978	29	29	33	38	33	59	47	60	60
1979	38	31	21	50	36	29	52	48	52
Period v	41.9	39.2	38.2	41.6	36.5	39.5	48.6	54.7	56.8
1950- $s(v)$	8.9	7.0	9.0	5.6	6.3	11.2	5.4	5.8	4.5
1979 v_{max}	62	58	54	53	50	62	60	66	66
v_{min}	28	27	21	33	27	23	38	40	50
Period v	45.8	38.7	42.8	42.3	36.5	39.9	51.0	55.1	58.3
1950- $s(v)$	8.2	8.3	8.2	6.8	7.0	12.8	5.2	6.3	3.7
1964 v_{max}	62	58	53	53	47	62	60	63	63
v_{min}	36	27	27	33	27	23	44	40	53
Period v	38.1	39.6	33.6	40.9	36.5	39.1	46.1	54.4	55.3
1965- $s(v)$	8.0	5.7	7.5	4.2	5.7	9.6	4.6	5.4	4.9
1979 v_{max}	58	51	54	50	50	59	52	66	66
v_{min}	28	29	21	33	29	28	38	47	50

Toledo, Ohio (1959-1977)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1959	38	31	32	24	20	42	40	44	44
1960	26	30	32	23	36	39	38	39	39
1961	34	30	31	23	22	40	52	32	52
1962	33	29	24	21	29	43	40	57	57
1963	29	27	22	40	33	47	42	39	47
1964	29	38	29	32	31	41	40	38	41
1965	32	36	27	18	24	46	52	42	52
1966	33	34	30	21	28	34	37	39	39
1967	39	29	28	31	26	62	42	34	62
1968	34	37	26	26	23	44	42	34	44
1969	29	36	20	38	30	39	56	59	59
1970	26	42	27	29	27	48	39	60	60
1971	24	28	28	19	32	50	52	47	52
1972	28	33	29	31	22	39	52	42	52
1973	33	26	29	29	38	48	42	42	48
1974	26	33	22	27	28	44	42	42	44
1975	31	32	23	38	29	48	47	56	56
1976	30	29	29	20	36	46	42	37	46
1977	40	32	26	42	29	42	47	31	47
Period $\bar{v}$	31.3	32.3	27.1	28.0	28.6	44.3	44.4	42.8	49.5
1959- $s(v)$	4.5	4.2	3.5	7.4	5.1	5.9	5.8	9.0	7.0
1977 v_{max}	40	42	32	42	38	62	56	60	62
v_{min}	24	26	20	18	20	34	37	31	39
Period $\bar{v}$	32.6	31.6	28.3	25.9	27.7	43.8	42.6	40.4	48.1
1959- $s(v)$	4.2	3.6	3.5	7.0	5.2	7.8	5.6	7.2	8.2
1967 v_{max}	39	38	32	40	36	62	52	57	62
v_{min}	26	27	22	18	20	34	37	32	39
Period $\bar{v}$	30.1	32.8	25.9	29.9	29.4	44.8	46.1	45.0	50.8
1968- $s(v)$	4.7	4.7	3.2	7.6	5.0	3.9	5.6	10.3	6.0
1977 v_{max}	40	42	29	42	38	50	56	60	60
v_{min}	24	26	20	19	22	39	39	31	44

Tulsa, Oklahoma (1950-1978)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	41	33	22	17	46	48	30	40	48
1951	42	33	35	29	36	40	49	37	49
1952	30	33	23	26	31	38	35	30	38
1953	33	31	29	29	33	36	32	33	36
1954	49	33	43	26	31	38	33	46	49
1955	33	30	24	32	37	31	38	33	38
1956	34	35	46	31	30	41	28	46	46
1957	49	41	30	39	35	17	28	40	49
1958	31	35	28	28	29	41	45	30	45
1959	48	41	29	25	33	32	37	44	48
1960	37	41	44	31	43	46	35	33	46
1961	34	34	24	30	32	33	39	55	55
1962	38	32	27	36	31	35	29	35	38
1963	37	32	30	49	37	37	31	37	49
1964	36	38	33	36	43	39	37	41	43
1965	35	38	28	41	40	37	36	41	41
1966	42	40	27	29	41	44	31	35	44
1967	41	32	43	37	41	45	37	37	45
1968	38	38	32	44	38	44	32	37	44
1969	31	29	33	36	51	45	29	35	51
1970	33	31	18	41	39	38	32	36	41
1971	37	50	32	36	43	35	35	53	53
1972	37	35	37	43	37	36	31	31	43
1973	41	37	40	39	49	46	41	41	49
1974	31	35	29	51	49	40	44	35	51
1975	36	30	28	44	50	46	47	43	50
1976	37	30	30	43	45	45	43	36	45
1977	40	25	26	42	46	53	45	40	53
1978	32	25	30	27	32	25	27	32	32
Period $\bar{v}$	37.3	34.4	31.0	35.1	38.9	39.0	35.7	38.3	45.5
1950- s(v)	5.2	5.2	6.9	8.0	6.6	7.3	6.2	6.2	5.5
1978 v_{max}	49	50	46	51	51	53	49	55	55
v_{min}	30	25	18	17	29	17	27	30	32
Period $\bar{v}$	38.3	34.6	31.0	30.6	34.6	36.6	34.9	38.5	45.3
1950- s(v)	6.6	3.7	8.0	7.4	4.9	7.5	6.3	7.2	5.6
1963 v_{max}	49	41	46	49	46	48	49	55	55
v_{min}	30	30	22	17	29	17	28	30	36
Period $\bar{v}$	36.5	34.2	31.0	39.3	42.9	41.2	36.5	38.2	45.7
1964- s(v)	3.6	6.4	6.0	6.1	5.4	6.6	6.3	5.4	5.6
1978 v_{max}	42	50	43	51	51	53	47	53	53
v_{min}	31	25	18	27	32	25	27	31	32

Portland, Oregon (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	17	10	25	26	43	45	28	22	45
1951	18	16	34	50	51	36	44	21	51
1952	15	17	31	23	34	38	26	20	38
1953	16	7	22	23	49	39	28	22	49
1954	20	16	22	36	42	42	31	23	42
1955	18	21	32	36	50	42	27	30	50
1956	15	21	29	31	47	36	28	20	47
1957	22	16	26	22	54	31	17	23	54
1958	14	15	23	29	46	55	23	21	55
1959	13	20	29	34	38	31	26	23	38
1960	9	20	31	36	31	42	23	21	42
1961	16	13	31	38	45	50	39	21	50
1962	18	15	36	42	79	32	23	27	79
1963	24	26	31	27	55	39	27	23	55
1964	13	34	39	31	44	31	30	26	44
1965	9	39	39	64	42	53	30	26	64
1966	30	18	33	38	38	40	33	32	40
1967	27	26	38	41	78	42	28	34	78
1968	19	34	44	29	50	41	27	28	50
1969	19	24	39	29	40	51	39	29	51
1970	28	29	50	27	42	38	26	31	50
1971	19	13	39	33	53	34	34	29	53
1972	21	31	47	27	53	43	36	27	53
1973	28	21	51	26	32	36	34	31	51
1974	23	29	44	28	56	33	36	30	56
1975	31	17	37	41	31	40	36	31	41
1976	26	38	34	30	26	44	31	38	44
1977	26	20	39	39	26	48	46	31	48
1978	22	9	42	41	39	38	32	28	42
1979	24	19	43	43	49	36	27	38	49
Period $\bar{v}$	20.0	21.1	35.3	34.0	45.4	40.2	30.5	26.9	50.3
1950- $s(v)$	5.9	8.3	7.9	9.0	12.3	6.5	6.4	5.1	9.7
1979 v_{max}	31	39	51	64	79	55	46	38	79
v_{min}	9	7	22	22	26	31	17	20	38
Period $\bar{v}$	16.5	17.8	29.4	32.3	47.2	39.3	28.0	22.9	49.3
1950- $s(v)$	3.8	6.5	5.0	7.8	11.1	7.1	6.5	2.8	10.0
1964 v_{max}	24	34	39	50	79	55	44	30	79
v_{min}	9	7	22	22	31	31	17	20	38
Period $\bar{v}$	23.5	24.5	41.3	35.7	43.7	41.1	33.0	30.9	51.3
1965- $s(v)$	5.6	8.9	5.3	10.0	13.5	5.9	5.3	3.5	9.6
1979 v_{max}	31	39	51	64	78	53	46	38	78
v_{min}	9	9	33	26	26	33	26	26	40

Harrisburg, Pennsylvania (1950-1977)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	16	18	27	54	37	29	39	39	54
1951	29	24	25	38	24	37	35	39	39
1952	19	20	33	24	20	52	34	44	52
1953	30	20	33	19	26	29	44	57	57
1954	24	16	47	60	35	34	37	44	60
1955	22	19	22	25	25	25	63	57	63
1956	26	19	24	21	28	41	44	55	55
1957	21	16	24	31	24	32	35	38	38
1958	23	33	25	24	21	26	35	34	35
1959	20	16	24	20	34	30	33	37	37
1960	21	13	23	20	20	30	35	31	35
1961	15	20	27	20	26	27	31	35	35
1962	20	39	33	22	28	33	37	38	39
1963	32	36	19	21	28	35	52	46	52
1964	27	22	24	26	25	30	46	38	46
1965	22	22	21	21	28	39	46	45	46
1966	27	28	28	23	22	26	39	46	46
1967	35	30	28	29	20	34	47	42	47
1968	36	26	24	28	25	25	46	47	47
1969	33	35	23	22	23	30	32	39	39
1970	28	28	26	25	27	25	56	48	56
1971	21	26	20	20	27	33	50	46	50
1972	25	27	24	23	32	28	46	38	46
1973	35	25	36	26	32	44	37	40	44
1974	19	24	37	24	17	29	39	37	39
1975	24	47	19	29	28	37	44	50	50
1976	25	17	25	26	29	34	54	51	54
1977	23	24	19	24	19	26	37	46	46
Period $\bar{v}$	24.9	24.6	26.4	26.6	26.1	32.1	41.9	43.1	46.7
1950- $s(v)$	5.7	7.9	6.3	9.5	5.0	6.3	8.0	6.8	8.0
1977 v_{max}	36	47	47	60	37	52	63	57	63
v_{min}	15	13	19	19	17	25	31	31	35
Period $\bar{v}$	22.7	22.1	27.6	28.5	26.9	32.9	39.6	42.4	46.5
1950- $s(v)$	5.0	8.1	7.0	13.2	5.4	7.0	8.7	8.5	10.5
1963 v_{max}	32	39	47	60	37	52	63	57	63
v_{min}	15	13	19	19	20	25	31	31	35
Period $\bar{v}$	27.1	27.2	25.3	24.7	25.3	31.4	44.2	43.8	46.9
1964- $s(v)$	5.6	7.1	5.6	2.8	4.6	5.7	6.8	4.7	4.7
1977 v_{max}	36	47	37	29	32	44	56	51	56
v_{min}	19	17	19	20	17	25	32	37	39

Huron, South Dakota (1958-1977)

	Wind Direction								
YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1958	34	40	37	32	48	31	29	56	56
1959	56	25	25	31	49	46	45	55	56
1960	41	33	35	63	46	29	30	52	63
1961	34	48	26	43	41	63	41	46	63
1962	32	38	52	47	52	44	67	72	72
1963	37	40	49	41	44	29	54	66	66
1964	39	36	36	39	47	57	37	63	63
1965	39	36	26	40	39	47	24	52	52
1966	56	32	34	37	38	38	50	60	60
1967	37	52	30	42	42	39	38	63	63
1968	44	50	28	40	42	38	33	80	80
1969	56	42	27	39	39	38	37	62	62
1970	37	30	27	37	47	40	37	47	47
1971	40	38	38	38	50	42	41	48	50
1972	43	28	26	34	48	34	39	56	56
1973	48	38	34	50	39	34	38	51	51
1974	40	49	29	47	40	78	27	48	78
1975	36	29	37	62	38	47	38	58	62
1976	47	37	28	37	44	60	32	49	60
1977	44	50	29	40	39	50	32	50	50
Period $\bar{v}$	42.0	38.6	32.7	42.0	43.6	44.2	38.5	56.7	60.5
1958- $s(v)$	7.3	8.0	7.5	8.5	4.5	12.5	9.9	9.0	8.9
1977 v_{max}	56	52	52	63	52	78	67	80	80
v_{min}	32	25	25	31	38	29	24	47	47
Period $\bar{v}$	40.5	38.0	35.0	41.5	44.6	42.3	41.5	58.5	61.4
1958- $s(v)$	8.6	7.8	9.3	9.0	4.6	11.5	13.0	7.7	5.7
1967 v_{max}	56	52	52	63	52	63	67	72	72
v_{min}	32	25	25	31	38	29	24	52	52
Period $\bar{v}$	43.5	39.1	30.3	42.4	42.6	46.1	35.4	54.9	59.6
1968- $s(v)$	5.9	8.6	4.4	8.4	4.4	13.8	4.2	10.1	11.5
1977 v_{max}	56	50	38	62	50	78	41	80	80
v_{min}	36	28	26	34	38	34	27	47	47

Abilene, Texas (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	50	60	24	36	50	42	38	41	60
1951	48	39	25	42	54	43	31	97	97
1952	42	30	23	46	46	40	44	54	54
1953	42	30	31	47	63	49	43	42	63
1954	40	32	46	46	43	49	49	54	54
1955	48	50	26	44	51	47	49	46	51
1956	44	33	35	42	43	40	41	53	53
1957	43	31	34	43	46	41	48	46	48
1958	49	36	26	37	37	38	49	49	49
1959	41	43	29	42	40	47	41	41	47
1960	35	39	29	36	42	48	52	42	52
1961	60	63	54	41	39	48	42	47	63
1962	48	40	26	47	37	39	47	51	51
1963	59	46	21	41	42	39	44	61	61
1964	39	38	38	42	39	39	34	51	51
1965	40	39	32	50	39	52	60	43	60
1966	39	40	22	44	42	38	43	46	46
1967	47	44	28	36	41	43	44	38	47
1968	42	41	39	44	44	41	47	50	50
1969	52	47	37	42	38	40	43	44	52
1970	37	37	34	42	50	56	48	44	56
1971	43	64	33	46	46	48	44	47	64
1972	48	57	21	48	38	42	48	56	57
1973	39	48	26	39	47	54	44	46	54
1974	37	42	27	46	47	39	44	44	47
1975	30	44	34	47	46	41	43	47	47
1976	44	39	29	56	44	32	48	47	56
1977	39	33	28	41	42	37	47	39	47
1978	40	36	42	42	44	44	42	50	50
1979	39	30	37	42	42	41	41	50	50
Period $\bar{v}$	43.5	41.7	31.2	43.2	44.1	43.2	44.6	48.9	54.5
1950- $s(v)$	6.5	9.5	7.6	4.3	5.6	5.5	5.3	10.5	9.7
1979 v_{max}	60	64	54	56	63	56	60	97	97
v_{min}	30	30	21	36	37	32	31	38	46
Period $\bar{v}$	45.9	40.7	31.1	42.1	44.8	43.3	43.5	51.7	56.9
1950- $s(v)$	7.0	10.3	9.1	3.6	7.2	4.2	5.9	13.8	12.3
1964 v_{max}	60	63	54	47	63	49	52	97	97
v_{min}	35	30	21	36	37	38	31	41	47
Period $\bar{v}$	41.1	42.7	31.3	44.3	43.3	43.2	45.7	46.1	52.2
1965- $s(v)$	5.3	8.8	6.1	4.8	3.5	6.6	4.6	4.5	5.5
1979 v_{max}	52	64	42	56	50	56	60	56	64
v_{min}	30	30	21	36	38	32	41	38	46

Corpus Christi, Texas (1949-1975)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1949	40	32	36	49	46	26	47	40	49
1950	43	26	37	48	57	27	18	40	57
1951	47	31	37	55	46	19	17	43	55
1952	44	25	35	46	40	25	51	50	51
1953	40	32	34	43	46	26	18	44	46
1954	47	28	30	41	40	26	11	34	47
1955	47	31	29	37	38	14	18	40	47
1956	45	27	30	37	44	33	38	31	45
1957	38	30	32	40	37	20	48	29	48
1958	35	45	30	32	35	11	18	34	45
1959	41	32	29	45	37	22	19	32	45
1960	40	45	40	37	40	24	32	43	45
1961	56	43	35	37	45	47	45	68	68
1962	41	39	33	60	38	28	25	32	60
1963	39	45	31	52	32	27	32	37	52
1964	44	22	36	41	45	26	33	49	49
1965	45	26	38	35	43	19	19	39	45
1966	44	30	40	37	49	20	43	37	49
1967	56	39	78	66	43	33	27	46	78
1968	42	49	43	43	39	18	39	49	49
1969	43	37	31	41	38	18	45	33	45
1970	43	37	32	41	38	129	37	59	129
1971	54	58	29	47	38	22	38	71	71
1972	44	36	38	51	36	27	41	47	51
1973	40	37	26	46	42	20	41	45	46
1974	58	39	26	43	44	28	29	53	58
1975	43	32	32	53	40	25	45	41	53
Period $\bar{v}$	44.4	35.3	35.1	44.6	41.3	28.1	32.4	43.2	54.9
1949- $s(v)$	5.7	8.3	9.6	7.9	5.1	21.3	11.8	10.5	17.1
1975 v_{max}	58	58	78	66	57	129	51	71	129
v_{min}	35	22	26	32	32	11	11	29	45
Period $\bar{v}$	43.3	32.8	33.4	42.1	42.4	24.6	29.2	40.6	49.8
1949- $s(v)$	5.3	7.0	3.6	6.4	5.9	8.9	14.6	10.2	6.7
1961 v_{max}	56	45	40	55	57	47	51	68	68
v_{min}	35	25	29	32	35	11	11	29	45
Period $\bar{v}$	45.4	37.6	36.6	46.9	40.4	31.4	35.3	45.6	59.6
1962- $s(v)$	6.0	9.1	12.9	8.7	4.3	28.4	8.0	10.6	22.2
1975 v_{max}	58	58	78	66	49	129	45	71	129
v_{min}	39	22	26	35	32	18	19	32	45

Salt Lake City, Utah (1950-1979)

	Wind Direction								
YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	30	26	25	46	42	37	32	60	60
1951	37	20	30	37	36	39	40	39	40
1952	20	29	23	38	38	47	54	35	54
1953	25	30	34	35	36	36	45	51	51
1954	33	25	27	50	47	36	26	63	63
1955	19	25	33	48	55	55	43	41	55
1956	36	22	23	35	43	43	28	37	43
1957	27	23	19	37	44	31	46	33	46
1958	25	27	19	36	44	30	26	40	44
1959	28	31	27	33	36	39	43	37	43
1960	31	23	22	34	39	44	39	37	44
1961	48	28	29	40	47	52	54	44	54
1962	44	34	19	34	54	41	41	40	54
1963	37	28	26	41	48	48	70	58	70
1964	50	21	20	37	39	48	36	63	63
1965	31	29	30	40	39	50	30	40	50
1966	46	18	32	41	44	42	38	47	47
1967	41	44	31	46	50	42	29	48	50
1968	44	23	38	38	44	60	41	60	60
1969	38	32	39	38	48	50	48	49	50
1970	36	29	29	37	47	40	39	51	51
1971	30	39	34	39	46	42	44	46	46
1972	41	39	28	42	41	41	38	61	61
1973	37	29	33	38	38	46	47	47	47
1974	31	16	33	40	50	42	33	44	50
1975	36	24	29	40	41	39	40	42	42
1976	32	20	21	38	48	40	48	54	54
1977	47	29	29	38	42	42	43	44	47
1978	42	30	22	34	47	47	44	50	50
1979	33	26	33	29	44	38	39	42	44
Period $\bar{v}$	35.2	27.3	27.9	38.6	43.9	42.9	40.8	46.8	51.1
1950- $s(v)$	8.0	6.2	5.6	4.5	5.1	6.6	9.2	8.8	7.3
1979 v_{max}	50	44	39	50	55	60	70	63	70
v_{min}	19	16	19	29	36	30	26	33	40
Period $\bar{v}$	32.7	26.1	25.1	38.7	43.2	41.7	41.5	45.2	52.3
1950- $s(v)$	9.4	4.0	5.0	5.3	6.1	7.3	11.8	10.7	8.9
1964 v_{max}	50	34	34	50	55	55	70	63	70
v_{min}	19	20	19	33	36	30	26	33	40
Period $\bar{v}$	37.7	28.5	30.7	38.5	44.6	44.1	40.1	48.3	49.9
1965- $s(v)$	5.6	7.9	4.9	3.7	3.8	5.8	6.0	6.2	5.2
1979 v_{max}	47	44	39	46	50	60	48	61	61
v_{min}	30	16	21	29	38	38	29	40	42

Madison, Wisconsin (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	40	47	40	43	25	74	70	43	74
1951	36	33	41	28	34	70	41	69	70
1952	43	35	27	31	36	44	39	34	44
1953	46	34	42	40	59	44	51	42	59
1954	32	28	37	25	29	66	41	38	66
1955	39	32	37	33	30	46	44	42	46
1956	31	42	34	27	33	39	44	39	44
1957	30	32	28	39	33	35	52	35	52
1958	34	37	34	25	35	42	41	33	42
1959	34	41	25	32	35	37	44	41	44
1960	32	42	29	42	35	55	35	42	55
1961	34	42	35	35	46	44	40	33	46
1962	40	35	32	38	36	44	55	34	55
1963	59	35	26	36	36	52	35	44	59
1964	40	32	27	30	45	53	51	63	63
1965	36	33	37	33	33	57	38	37	57
1966	30	29	34	27	51	33	38	42	51
1967	32	31	40	31	36	46	37	40	46
1968	33	33	31	35	37	40	59	38	59
1969	35	37	23	35	32	41	31	36	41
1970	30	27	42	42	34	41	40	62	62
1971	36	37	33	30	33	44	35	43	44
1972	32	41	32	38	34	38	36	45	45
1973	32	37	27	31	36	34	34	51	51
1974	37	29	29	29	37	41	30	38	41
1975	30	37	40	34	32	47	46	36	47
1976	47	36	21	27	30	33	30	37	47
1977	40	31	29	30	29	40	47	36	47
1978	34	29	26	33	29	37	31	35	37
1979	32	31	42	29	32	47	31	48	48
Period $\bar{v}$	36.2	34.8	32.7	32.9	35.4	45.5	41.5	41.9	51.4
1950- $s(v)$	6.3	4.9	6.2	5.1	6.9	10.3	9.3	8.9	9.2
1979 v_{max}	59	47	42	43	59	74	70	69	74
v_{min}	30	27	21	25	25	33	30	33	37
Period $\bar{v}$	38.0	36.5	32.9	33.6	36.5	49.7	45.5	42.1	54.6
1950- $s(v)$	7.5	5.2	5.7	6.0	8.2	12.0	9.1	10.5	10.4
1964 v_{max}	59	47	42	43	59	74	70	69	74
v_{min}	30	28	25	25	25	35	35	33	42
Period $\bar{v}$	34.4	33.2	32.4	32.3	34.3	41.3	37.5	41.6	48.2
1965- $s(v)$	4.5	4.1	6.7	4.1	5.3	6.4	8.0	7.4	6.9
1979 v_{max}	47	41	42	42	51	57	59	62	62
v_{min}	30	27	21	27	29	33	30	35	37

Sheridan, Wyoming (1958-1977)

	Wind Direction								
YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1958	28	20	23	50	23	49	50	69	69
1959	41	25	19	29	25	40	38	60	60
1960	35	21	16	33	26	43	45	60	60
1961	25	18	29	35	27	47	38	59	59
1962	22	23	22	35	16	47	51	60	60
1963	30	14	23	32	35	63	48	56	63
1964	22	15	18	33	19	53	53	60	60
1965	33	31	20	33	18	68	43	56	68
1966	37	21	19	34	14	52	40	62	62
1967	44	14	17	41	37	52	42	63	63
1968	37	19	19	36	21	40	41	48	48
1969	29	17	16	37	22	54	34	68	68
1970	29	13	20	36	38	62	38	54	62
1971	33	16	22	31	22	50	31	48	50
1972	23	19	27	37	38	56	44	48	56
1973	29	23	19	32	16	47	40	66	66
1974	24	29	19	38	26	58	50	57	58
1975	22	22	19	28	29	40	33	52	52
1976	31	24	29	33	39	48	33	48	48
1977	44	20	19	41	37	34	44	57	57
Period $\bar{v}$	30.9	20.2	20.8	35.2	26.4	50.2	41.8	57.6	59.5
1958- $s(v)$	7.1	4.8	3.8	4.8	8.3	8.6	6.4	6.5	6.3
1977 v_{max}	44	31	29	50	39	68	53	69	69
v_{min}	22	13	16	28	14	34	31	48	48
Period $\bar{v}$	31.7	20.2	20.6	35.5	24.0	51.4	44.8	60.5	62.4
1958- $s(v)$	7.7	5.3	3.8	5.9	7.7	8.6	5.5	3.7	3.5
1967 v_{max}	44	31	29	50	37	68	53	69	69
v_{min}	22	14	16	29	14	40	38	56	59
Period $\bar{v}$	30.1	20.2	20.9	34.9	28.8	48.9	38.8	54.6	56.5
1968- $s(v)$	6.7	4.5	4.0	3.8	8.6	8.9	6.1	7.5	7.2
1977 v_{max}	44	29	29	41	39	62	50	68	68
v_{min}	22	13	16	28	16	34	31	48	48

APPENDIX IV

LARGEST YEARLY FASTEST-MILE WIND SPEEDS AT 10 METERS ABOVE GROUND CORRESPONDING TO DATA EXTRACTED FROM LOCAL CLIMATOLOGICAL DATA (LCD) SUMMARIES (IN MILES PER HOUR).

Notes:

1. The data listed in the appendix have not been corrected for "hidden" values (see note 1, appendix I).

2. Also included in this appendix are the following sample statistics:

   $\overline{v}$ = sample mean

   $s(v)$ = sample standard deviation

   v_{max} = sample maximum

   v_{min} = sample minimum

   Sample statistics are provided for the entire record as well as for the first and the second half of the record.

Atlanta, Georgia (1950-1956, 1964-1975)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	20	29	27	25	42	42	27	36	42
1951	32	20	22	31	34	31	32	38	38
1952	42	22	28	36	35	34	27	38	42
1953	31	60	29	29	30	34	38	46	60
1954	41	24	27	48	31	34	37	40	48
1955	27	24	29	43	31	43	37	35	43
1956	25	26	23	22	37	58	43	44	58
1964	32	39	31	47	27	38	47	42	47
1965	36	32	28	28	28	36	38	32	38
1966	58	33	28	34	26	33	38	44	58
1967	20	33	27	27	30	26	37	39	39
1968	20	29	31	30	32	43	32	39	43
1969	19	38	32	77	32	33	32	37	77
1970	32	30	30	37	26	28	34	37	37
1971	33	38	38	33	36	70	49	38	70
1972	34	42	31	28	30	36	49	43	49
1973	34	28	31	38	30	46	47	34	47
1974	33	52	38	28	34	34	53	49	53
1975	30	37	32	47	38	54	49	32	54
Period $\bar{v}$	31.5	33.5	29.6	36.2	32.1	39.6	39.3	39.1	49.6
1950-56 $s(v)$	9.3	10.1	4.0	12.5	4.2	11.0	7.9	4.6	11.1
1964-75 v_{max}	58	60	38	77	42	70	53	49	77
v_{min}	19	20	22	22	26	26	27	32	37
Period $\bar{v}$	31.8	30.7	27.1	34.3	32.8	38.9	36.2	39.0	46.2
1950-56 $s(v)$	7.2	12.4	2.9	9.6	4.7	8.2	6.7	4.5	8.0
1964-65 v_{max}	42	60	31	48	42	58	47	46	60
v_{min}	20	20	22	22	27	31	27	32	38
Period $\bar{v}$	31.3	36.0	31.8	37.9	31.4	40.3	42.0	39.2	52.7
1966- $s(v)$	11.3	7.2	3.6	15.0	3.9	13.5	8.2	5.0	12.9
1975 v_{max}	58	52	38	77	38	70	53	49	77
v_{min}	19	28	27	27	26	26	32	32	37

Peoria, Illinois (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	32	39	27	41	49	56	50	39	56
1951	38	33	27	32	41	41	46	34	46
1952	46	46	25	28	38	51	40	43	51
1953	60	28	38	37	51	48	48	69	69
1954	31	38	31	30	39	50	43	48	50
1955	31	25	27	27	39	46	39	46	46
1956	29	28	28	27	32	51	60	39	60
1957	39	27	37	25	35	48	43	38	48
1958	28	27	24	22	41	55	40	41	55
1959	31	30	26	27	29	38	55	45	55
1960	40	44	19	41	32	37	42	52	52
1961	32	29	33	36	30	48	44	38	48
1962	33	41	29	32	38	42	44	40	44
1963	34	31	29	36	33	42	42	46	46
1964	42	39	36	29	38	48	62	42	62
1965	36	32	28	30	38	47	57	39	57
1966	33	33	29	33	36	39	44	44	44
1967	36	34	32	41	41	43	44	51	51
1968	22	33	22	41	39	42	44	43	44
1969	33	33	42	32	33	32	48	37	48
1970	22	49	22	39	33	44	47	44	49
1971	28	38	22	36	39	52	47	51	52
1972	30	36	26	23	33	33	41	38	41
1973	32	26	32	37	38	37	31	60	60
1974	32	34	31	31	33	39	54	40	54
1975	28	26	34	31	44	38	56	32	56
1976	27	32	31	29	32	38	48	46	48
1977	29	29	19	36	31	49	40	48	49
1978	38	31	33	24	31	38	34	37	38
1979	36	29	21	28	33	33	36	46	46
Period $\bar{v}$	33.6	33.3	28.7	32.0	36.6	43.5	45.6	43.9	50.8
1950- $s(v)$	7.3	6.1	5.7	5.6	5.3	6.6	7.3	7.6	6.7
1979 v_{max}	60	49	42	41	51	56	62	69	69
v_{min}	22	25	19	22	29	32	31	32	38
Period $\bar{v}$	36.4	33.7	29.1	31.3	37.7	46.7	46.5	44.0	52.5
1950- $s(v)$	8.3	6.9	5.2	5.8	6.3	5.7	7.2	8.3	7.0
1964 v_{max}	60	46	38	41	51	56	62	69	69
v_{min}	28	25	19	22	29	37	39	34	44
Period $\bar{v}$	30.8	33.0	28.3	32.7	35.6	40.3	44.7	43.7	49.1
1965- $s(v)$	4.9	5.5	6.3	5.6	4.0	5.9	7.6	7.1	6.1
1979 v_{max}	38	49	42	41	44	52	57	60	60
v_{min}	22	26	19	23	31	32	31	32	38

Minneapolis, Minnesota (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	28	25	32	34	31	44	43	41	44
1951	40	25	40	29	35	31	78	35	78
1952	34	34	36	27	29	28	36	44	44
1953	40	40	38	46	34	31	38	35	46
1954	30	29	39	35	30	38	32	38	39
1955	31	30	33	29	36	34	36	33	36
1956	31	29	36	36	38	32	31	40	40
1957	26	25	29	36	31	28	36	42	42
1958	37	34	36	31	31	66	38	45	66
1959	34	33	32	34	44	46	36	42	46
1960	36	30	40	30	36	33	36	46	46
1961	35	33	22	32	44	40	36	37	44
1962	55	27	43	36	31	41	52	45	55
1963	41	35	31	35	37	49	32	38	49
1964	40	32	27	40	37	48	57	67	67
1965	34	25	29	31	34	37	42	49	49
1966	44	62	32	31	38	42	41	43	62
1967	69	27	43	33	35	49	34	62	69
1968	46	30	29	36	38	44	36	48	48
1969	46	31	20	38	34	41	59	33	59
1970	38	26	20	32	40	44	49	46	49
1971	35	36	29	35	35	46	44	46	46
1972	29	40	32	33	30	42	43	36	43
1973	35	48	30	42	33	40	24	36	48
1974	54	31	26	29	33	42	33	44	54
1975	38	40	42	37	37	44	35	55	55
1976	41	30	27	30	40	37	37	41	41
1977	32	33	26	35	43	36	45	42	45
1978	37	32	31	29	30	40	43	37	43
1979	33	41	35	35	34	41	37	42	42
Period $\overline{v}$	38.3	33.1	32.2	33.9	35.3	40.5	40.6	42.9	49.8
1950- $s(v)$	9.0	7.8	6.3	4.2	4.2	7.6	10.3	7.8	10.0
1979 v_{max}	69	62	43	46	44	66	78	67	78
v_{min}	26	25	20	27	29	28	24	33	36
Period $\overline{v}$	35.9	30.7	34.3	34.0	34.9	39.3	41.1	41.9	49.5
1950- $s(v)$	7.0	4.3	5.6	4.8	4.7	10.2	12.5	8.0	11.9
1964 v_{max}	55	40	43	46	44	66	78	67	78
v_{min}	26	25	22	27	29	28	31	33	36
Period $\overline{v}$	40.7	35.5	30.1	33.7	35.6	41.7	40.1	44.0	50.2
1965- $s(v)$	10.2	9.7	6.5	3.6	3.7	3.5	8.0	7.6	8.1
1979 v_{max}	69	62	43	42	43	49	59	62	69
v_{min}	29	25	20	29	30	36	24	33	41

Kansas City, Missouri (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	26	29	28	29	48	57	42	47	57
1951	40	34	24	32	35	51	47	55	55
1952	29	27	24	32	34	59	41	57	59
1953	31	23	26	36	42	40	51	32	51
1954	40	30	22	35	40	46	30	47	47
1955	29	22	20	24	41	44	38	30	44
1956	27	27	18	28	29	38	45	40	45
1957	40	28	27	25	28	34	32	45	45
1958	28	36	21	28	28	45	32	28	45
1959	40	23	29	23	28	36	42	38	42
1960	26	23	14	24	28	47	36	36	47
1961	25	36	31	35	28	36	24	35	36
1962	28	24	27	38	27	40	42	41	42
1963	33	31	22	25	30	46	33	35	46
1964	51	30	36	33	37	37	37	37	51
1965	47	41	23	41	39	38	36	34	47
1966	32	48	30	44	37	27	33	37	48
1967	33	26	25	36	36	42	40	45	45
1968	32	28	16	46	35	47	34	35	47
1969	34	34	22	50	35	59	51	49	59
1970	34	33	25	41	37	38	44	41	44
1971	36	38	26	33	40	38	40	46	46
1972	34	37	29	23	37	50	49	46	50
1973	37	35	32	36	35	46	29	76	76
1974	32	35	46	44	38	44	33	41	46
1975	30	22	34	35	38	45	16	41	45
1976	54	27	26	37	38	40	25	41	54
1977	33	38	27	36	34	39	25	38	39
1978	28	30	30	38	26	36	28	50	50
1979	36	28	36	34	39	38	35	37	39
Period $\bar{v}$	34.2	30.8	26.5	34.0	34.9	42.8	36.3	42.0	48.2
1950- $s(v)$	7.1	6.3	6.5	7.1	5.4	7.4	8.4	9.4	7.6
1979 v_{max}	54	48	46	50	48	59	51	76	76
v_{min}	25	22	14	23	26	27	16	28	36
Period $\bar{v}$	32.9	28.2	24.6	29.8	33.5	43.7	38.1	40.2	47.5
1950- $s(v)$	7.6	4.7	5.5	5.0	6.7	7.6	7.2	8.6	6.2
1964 v_{max}	51	36	36	38	48	59	51	57	59
v_{min}	25	22	14	23	27	34	24	28	36
Period $\bar{v}$	35.5	33.3	28.5	38.3	36.3	41.8	34.5	43.8	49.0
1965- $s(v)$	6.7	6.7	7.0	6.5	3.3	7.3	9.4	10.2	9.0
1979 v_{max}	54	48	46	50	40	59	51	76	76
v_{min}	28	22	16	23	26	27	16	34	39

St. Louis, Missouri (1959-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1959	21	26	20	28	22	26	31	25	31
1960	23	18	30	36	37	28	35	37	37
1961	31	22	25	31	34	30	31	24	34
1962	19	30	21	31	31	37	37	31	31
1963	36	34	24	33	33	39	50	44	50
1964	31	40	41	67	44	42	50	50	67
1965	36	23	27	37	37	42	40	60	60
1966	36	27	30	36	31	41	36	53	53
1967	42	29	24	36	31	50	42	41	50
1968	30	47	29	43	32	42	46	38	47
1969	38	37	41	32	32	50	38	44	50
1970	32	41	32	47	37	32	43	38	47
1971	30	36	21	44	38	47	42	42	47
1972	29	26	32	32	32	36	41	44	44
1973	48	27	34	47	44	42	44	36	48
1974	31	26	29	42	33	56	52	37	56
1975	28	38	32	40	36	44	44	46	46
1976	28	30	27	40	36	42	37	36	42
1977	36	29	22	40	37	47	46	44	47
1978	47	30	38	33	32	47	46	43	47
1979	37	38	22	41	31	34	38	44	44
Period $\bar{v}$	32.8	31.1	28.6	28.9	34.3	40.2	40.9	40.8	46.6
1959- $s(v)$	7.5	7.2	6.3	8.4	4.8	8.3	6.6	8.4	8.8
1979 v_{max}	48	47	41	67	44	56	52	60	67
v_{min}	19	18	20	28	22	26	27	24	31
Period $\bar{v}$	30.5	29.6	27.1	37.8	33.2	36.7	38.8	40.3	46.0
1959- $s(v)$	7.5	8.7	6.0	11.1	5.7	8.3	8.1	11.8	12.4
1968 v_{max}	42	47	41	67	44	50	50	60	67
v_{min}	19	18	20	28	22	26	27	24	31
Period $\bar{v}$	34.9	32.5	30.0	39.8	35.3	43.4	42.8	41.3	47.1
1969- $s(v)$	7.1	5.5	6.6	5.4	3.8	7.2	4.4	3.7	3.7
1979 v_{max}	48	41	41	47	44	56	52	46	56
v_{min}	28	26	21	32	31	32	37	36	42

Albany, New York (1950-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	35	29	67	28	47	33	50	50	67
1951	29	25	29	31	32	22	40	50	50
1952	35	36	25	25	29	20	54	43	54
1953	34	30	12	31	32	27	41	68	68
1954	29	25	23	40	30	16	47	41	47
1955	29	23	32	21	28	21	43	43	43
1956	30	32	13	26	32	17	36	41	41
1957	45	19	21	40	35	32	47	38	47
1958	38	30	27	29	28	11	40	34	40
1959	28	20	25	28	36	31	54	47	54
1960	35	37	23	25	27	32	44	34	44
1961	25	25	24	20	46	20	32	39	46
1962	29	36	42	29	36	33	42	46	46
1963	30	28	16	33	30	41	50	39	50
1964	27	16	17	38	31	34	47	39	47
1965	41	28	24	36	33	34	40	44	44
1966	23	24	26	18	33	37	38	49	49
1967	31	31	18	27	33	37	33	50	50
1968	29	31	13	26	32	21	48	42	48
1969	27	14	12	33	31	40	47	33	47
1970	26	28	23	36	32	29	47	33	47
1971	27	24	12	33	29	29	54	63	63
1972	32	24	18	23	32	22	46	47	47
1973	29	27	20	27	37	28	38	39	39
1974	27	24	22	33	37	29	42	52	52
1975	22	21	29	22	36	30	38	50	50
1976	33	24	11	24	37	22	44	53	53
1977	37	19	18	23	32	23	42	47	47
1978	38	20	16	28	29	36	37	43	43
1979	24	31	17	22	36	49	47	42	49
Period $\bar{v}$	30.8	26.0	22.5	28.5	33.3	28.5	43.6	44.6	49.1
1950- $s(v)$	5.4	5.7	10.9	5.9	4.6	8.4	5.9	8.0	6.9
1979 v_{max}	45	37	67	40	47	49	54	68	68
v_{min}	22	14	11	18	27	11	32	33	39
Period $\bar{v}$	31.9	27.4	26.4	29.6	33.3	26.0	44.5	43.5	49.6
1950- $s(v)$	5.1	6.4	13.6	6.2	6.1	8.5	6.3	8.4	8.3
1964 v_{max}	45	37	67	40	47	41	54	68	68
v_{min}	25	16	12	20	27	11	32	34	40
Period $\bar{v}$	29.7	24.7	18.6	27.4	33.3	31.1	42.7	45.8	48.5
1965- $s(v)$	5.6	4.9	5.4	5.6	2.7	7.8	5.5	7.8	5.3
1979 v_{max}	41	31	29	36	37	49	54	63	63
v_{min}	22	14	11	18	29	21	33	33	39

New York (LaGuardia), New York (1947-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1947	39	46	43	49	26	52	40	49	52
1948	31	54	28	31	28	35	25	46	54
1949	40	39	21	33	26	39	28	46	46
1950	37	31	33	56	27	31	50	42	56
1951	40	35	35	37	28	28	35	49	49
1952	35	35	49	37	26	39	30	46	49
1953	56	31	43	41	28	32	35	46	56
1954	41	41	21	54	28	33	35	49	54
1955	46	35	46	45	29	31	46	43	46
1956	53	45	45	25	26	26	47	43	53
1957	37	35	21	42	37	29	31	46	46
1958	35	56	31	27	26	31	31	52	56
1959	35	40	22	31	31	35	31	52	52
1960	31	58	27	29	26	32	37	41	58
1961	41	49	26	21	23	40	33	43	49
1962	26	35	39	37	29	36	24	60	60
1963	38	53	34	36	36	29	66	47	66
1964	32	66	21	47	31	48	42	47	66
1965	38	36	19	31	41	33	41	41	41
1966	27	44	27	39	37	29	57	50	57
1967	41	46	32	28	36	41	50	53	53
1968	41	74	38	47	44	43	48	47	74
1969	58	50	26	30	33	38	33	50	58
1970	32	40	52	29	42	39	50	41	52
1971	33	62	41	44	44	38	49	52	62
1972	38	63	24	43	39	40	60	54	63
1973	33	44	27	29	42	38	42	39	44
1974	31	61	26	34	36	32	42	47	61
1975	38	36	37	29	31	44	50	42	50
1976	20	58	23	52	40	44	53	46	58
1977	28	60	32	32	32	60	47	50	60
1978	29	43	30	24	32	40	48	40	48
1979	36	38	48	38	58	50	46	41	58
Period $\bar{v}$	36.8	46.6	32.3	36.6	33.3	37.4	41.9	46.7	54.8
1947- $s(v)$	8.1	11.4	9.4	9.1	7.5	7.6	10.2	4.8	7.1
1979 v_{max}	58	74	52	56	58	60	66	60	74
v_{min}	26	31	19	21	23	26	24	39	41
Period $\bar{v}$	38.9	41.6	33.1	37.2	27.8	34.3	34.9	47.1	52.3
1947- $s(v)$	7.7	8.8	9.9	10.2	3.1	6.2	7.6	4.8	4.4
1962 v_{max}	56	58	49	56	37	52	50	60	60
v_{min}	26	31	21	21	23	26	24	41	46
Period $\bar{v}$	34.9	51.4	31.6	36.0	38.5	40.4	48.5	46.3	57.1
1963- $s(v)$	8.1	11.7	9.2	8.1	6.7	7.8	7.8	4.8	8.4
1979 v_{max}	58	74	52	52	58	60	66	54	74
v_{min}	27	36	19	24	31	29	33	39	41

Cape Hatteras, North Carolina (1917-1956)

YR	Wind Direction								Max. Winds from all Directions
	N	NE	E	SE	S	SW	W	NW	
1917	58	43	22	35	45	39	40	51	58
1918	42	31	47	28	25	70	43	40	70
1919	43	35	27	32	31	34	38	39	43
1920	43	38	19	37	27	43	43	40	43
1921	38	35	32	39	27	43	40	42	43
1922	47	37	19	27	29	38	29	49	49
1923	42	32	22	31	37	31	49	49	49
1924	35	32	27	40	43	55	37	55	55
1925	43	38	29	43	27	29	49	46	49
1926	45	37	29	49	39	37	42	43	49
1927	40	38	14	37	20	37	45	57	57
1928	43	37	16	38	37	43	45	39	45
1929	48	35	23	43	30	41	43	45	48
1930	52	33	19	46	35	30	38	51	52
1931	43	29	16	35	31	31	54	51	54
1932	47	49	29	37	31	43	62	42	62
1933	38	70	19	45	26	32	43	83	83
1934	37	37	19	28	37	31	32	67	67
1935	42	38	27	25	30	49	42	50	50
1936	73	36	20	40	38	44	49	83	83
1937	66	34	20	43	38	27	45	64	66
1938	38	28	12	41	43	38	52	60	60
1939	52	31	22	31	28	37	39	71	71
1940	49	46	24	41	35	32	28	60	60
1941	41	27	16	31	37	27	38	51	51
1942	38	30	22	41	30	34	41	41	41
1943	41	26	16	24	38	34	37	45	45
1944	37	28	20	37	45	31	39	51	51
1945	49	27	37	27	35	28	43	51	51
1946	52	41	25	35	41	32	41	38	52
1947	39	37	24	33	35	39	48	39	48
1948	39	60	32	22	44	40	35	33	60
1949	37	28	24	30	33	39	37	68	68
1950	34	30	22	40	35	42	37	37	42
1951	32	35	28	34	35	44	44	35	44
1952	32	29	20	42	26	44	30	46	46
1953	45	27	27	71	61	44	37	46	71
1954	35	40	37	52	33	52	37	72	72
1955	40	56	45	61	63	42	43	42	63
1956	47	47	21	26	40	48	39	39	48
Period $\bar{v}$	43.6	36.7	24.2	37.4	35.5	38.9	41.3	50.3	55.5
1917- $s(v)$	8.4	9.4	7.6	9.7	8.6	8.5	6.7	12.5	11.1
1956 v_{max}	73	70	47	71	63	70	62	83	83
v_{min}	32	26	12	22	20	27	28	33	41
Period $\bar{v}$	45.0	38.0	23.8	36.8	32.3	40.0	43.2	51.1	55.5
1917- $s(v)$	8.4	8.7	7.5	6.7	6.4	9.9	7.3	12.9	12.0
1936 v_{max}	73	70	47	49	45	70	62	83	83
v_{min}	35	29	14	25	20	29	29	39	43
Period $\bar{v}$	42.2	35.4	24.7	38.1	38.8	37.7	39.5	49.5	55.5
1937- $s(v)$	8.4	10.0	7.9	12.2	9.4	7.0	5.5	12.4	10.4
1956 v_{max}	66	60	45	71	63	52	52	72	72
v_{min}	32	26	12	22	26	27	28	33	41

Cleveland, Ohio (1950-1976)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	29	26	28	26	31	53	42	38	53
1951	39	24	23	26	32	38	58	36	58
1952	33	30	18	27	25	50	50	31	50
1953	32	21	19	29	50	44	56	40	56
1954	30	22	23	37	26	52	41	38	52
1955	38	23	18	24	30	61	47	38	61
1956	41	28	20	25	38	50	53	49	53
1957	33	29	22	29	44	55	44	32	55
1958	28	27	21	29	37	48	42	38	48
1959	33	21	27	30	33	57	46	49	57
1960	47	29	31	32	41	33	41	34	47
1961	29	32	36	27	38	44	36	48	48
1962	42	26	19	27	34	41	41	41	42
1963	32	28	18	33	63	47	44	37	63
1964	29	42	26	32	37	53	48	34	53
1965	32	38	28	47	40	44	48	42	48
1966	36	37	36	28	40	44	39	32	44
1967	32	33	21	26	36	39	59	34	59
1968	39	42	26	36	38	44	39	29	44
1969	44	39	30	30	42	39	33	36	44
1970	29	29	32	33	38	50	47	44	50
1971	38	29	19	24	30	54	47	40	54
1972	32	34	31	33	43	52	44	37	52
1973	27	32	21	36	38	41	38	32	41
1974	29	38	18	44	30	50	56	36	56
1975	28	37	28	31	34	50	44	41	50
1976	29	33	13	23	44	54	37	33	54
Period $\bar{v}$	33.7	30.7	24.1	30.5	37.5	47.7	45.2	37.7	51.6
1950- $s(v)$	5.5	6.2	6.0	5.8	7.7	6.6	6.8	5.3	5.7
1976 v_{max}	47	42	36	47	63	61	59	49	63
v_{min}	27	21	13	23	25	33	33	29	41
Period $\bar{v}$	34.9	26.0	23.5	28.3	35.3	48.2	45.9	39.4	52.3
1950- $s(v)$	5.9	3.6	5.5	3.4	7.1	7.9	6.6	6.0	5.2
1962 v_{max}	47	32	36	37	50	61	58	49	61
v_{min}	28	21	18	24	25	33	36	31	42
Period $\bar{v}$	32.6	35.1	24.8	32.6	39.5	47.2	44.5	36.2	50.9
1963- $s(v)$	4.9	4.6	6.6	6.8	8.0	5.4	7.2	4.3	6.3
1976 v_{max}	44	42	36	47	63	54	59	44	63
v_{min}	27	28	13	23	30	39	33	29	41

Chattanaoga, Tennessee (1941-1974)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1941	22	22	10	29	24	35	35	31	35
1942	28	23	25	23	42	42	42	40	42
1943	35	24	20	31	34	23	45	43	45
1944	26	23	15	23	30	32	38	43	43
1945	29	34	19	28	34	35	30	33	35
1946	29	31	22	35	36	62	54	38	62
1947	23	28	24	22	28	45	71	64	71
1948	24	28	28	32	33	41	54	30	54
1949	29	56	14	20	29	32	41	31	56
1950	22	25	19	30	41	38	34	34	41
1951	38	21	31	34	35	48	42	57	57
1952	27	28	15	47	32	40	57	43	57
1953	25	27	17	42	36	38	45	60	60
1954	26	23	24	20	29	37	32	44	44
1955	23	32	22	27	37	45	42	41	45
1956	31	36	15	29	32	37	51	42	51
1957	22	23	15	29	32	51	51	31	51
1958	21	21	41	18	31	47	42	32	47
1959	23	20	21	21	27	53	33	30	53
1960	27	31	12	24	28	41	30	39	41
1961	22	23	17	21	41	32	41	30	41
1962	25	24	15	9	32	20	38	38	38
1963	34	22	15	21	23	32	31	37	37
1964	33	26	18	29	32	49	37	32	49
1965	28	24	19	22	28	37	33	48	48
1966	32	42	26	30	38	29	37	33	42
1967	40	29	17	23	32	34	29	33	40
1968	34	24	14	29	29	38	32	32	38
1969	26	30	14	32	33	34	32	37	37
1970	29	28	21	30	33	39	28	37	39
1971	33	33	29	28	28	37	32	30	37
1972	32	29	23	31	32	31	23	40	40
1973	26	37	14	32	33	42	31	36	42
1974	22	34	18	33	30	41	40	37	41
Period $\bar{v}$	27.8	28.3	19.7	27.5	32.2	38.7	39.2	38.4	45.9
1941- $s(v)$	5.0	7.2	6.3	7.1	4.4	8.3	10.0	8.5	8.7
1974 v_{max}	40	56	41	47	42	62	71	64	71
v_{min}	21	20	10	9	23	20	23	30	35
Period $\bar{v}$	27.0	28.5	19.7	29.5	33.2	40.1	44.9	41.5	49.9
1941- $s(v)$	4.6	8.4	5.6	7.3	4.6	8.7	10.5	10.3	9.9
1957 v_{max}	38	56	31	47	42	62	71	64	71
v_{min}	22	21	10	20	24	23	30	30	35
Period $\bar{v}$	28.6	28.1	19.6	25.5	31.2	37.4	33.5	35.4	41.8
1958- $s(v)$	5.3	6.0	7.1	6.4	4.2	8.0	5.1	4.6	4.7
1967 v_{max}	40	42	41	33	41	53	42	48	53
v_{min}	21	20	14	9	23	20	23	30	37

Nashville, Tennessee (1950-1974)

Wind Directon

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	29	30	13	30	36	28	32	45	45
1951	32	22	14	30	30	37	54	44	54
1952	24	28	20	40	28	35	38	67	67
1953	35	19	27	29	29	28	36	69	69
1954	40	28	22	23	32	32	36	40	40
1955	29	25	19	21	27	26	49	39	49
1956	34	25	24	28	28	28	44	45	45
1957	40	19	22	31	33	31	38	37	40
1958	36	21	18	25	40	30	58	43	58
1959	27	18	16	20	40	40	40	34	40
1960	48	16	18	32	34	30	38	40	48
1961	21	15	31	31	25	41	40	32	41
1962	34	21	23	22	39	34	35	47	47
1963	28	29	13	24	36	40	39	50	50
1964	28	20	16	34	26	34	41	45	45
1965	31	36	23	30	37	42	32	50	50
1966	28	35	20	37	39	32	28	53	53
1967	21	25	16	30	36	38	32	33	38
1968	23	31	17	34	36	44	30	32	44
1969	19	35	13	31	31	40	44	38	44
1970	20	22	16	40	34	40	38	36	40
1971	30	37	18	36	44	38	26	33	44
1972	39	31	15	31	32	41	46	49	49
1973	20	28	23	35	35	39	33	37	39
1974	21	34	21	38	37	38	37	37	38
Period $\bar{v}$	29.5	26.0	19.1	30.5	33.8	35.4	38.6	43.0	47.1
1950- s(v)	7.6	6.6	4.5	5.7	4.9	5.2	7.6	9.7	8.2
1974 v_{max}	48	37	31	40	44	44	58	69	69
v_{min}	19	15	13	20	25	26	26	32	38
Period $\bar{v}$	32.9	22.2	20.3	28.3	31.8	32.2	41.9	44.6	49.7
1950- s(v)	7.6	5.0	5.2	5.5	4.9	5.0	7.9	11.7	10.3
1961 v_{max}	48	30	31	40	40	41	58	69	69
v_{min}	21	15	13	20	25	26	32	32	40
Period $\bar{v}$	26.3	29.5	18.0	32.5	35.5	38.5	35.5	41.5	44.7
1962- s(v)	6.2	6.0	3.7	5.2	4.4	3.4	6.1	7.6	5.0
1974 v_{max}	39	37	23	40	44	44	46	53	53
v_{min}	19	20	13	22	26	32	26	32	38

Richmond, Virginia (1951-1979)

Wind Direction

YR	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1951	29	29	29	29	29	39	29	35	39
1952	27	26	24	43	29	28	23	45	45
1953	23	23	23	26	25	28	27	29	29
1954	23	23	23	59	26	27	25	39	59
1955	29	29	23	29	25	32	20	48	48
1956	22	29	16	27	26	34	25	29	34
1957	23	23	23	35	43	33	26	29	43
1958	23	29	34	29	23	23	23	29	34
1959	23	27	25	30	35	29	29	27	35
1960	27	24	26	21	29	23	28	33	33
1961	38	24	30	38	32	42	31	37	42
1962	50	28	19	30	40	34	32	33	50
1963	32	26	19	22	27	29	41	38	41
1964	34	36	20	21	26	44	30	38	44
1965	39	32	21	30	24	36	32	38	39
1966	38	24	24	29	27	44	38	32	44
1967	30	29	17	20	19	42	33	37	42
1968	29	31	23	24	31	44	28	36	44
1969	38	33	16	28	24	36	32	37	38
1970	32	28	19	22	28	32	40	34	40
1971	32	29	19	27	19	44	34	48	48
1972	29	29	27	39	28	32	31	44	44
1973	29	39	24	26	21	37	39	52	52
1974	27	23	32	19	14	39	26	34	39
1975	24	33	22	20	19	38	38	44	44
1976	29	28	22	24	23	34	38	37	38
1977	33	39	19	36	19	36	32	42	42
1978	27	30	19	21	24	47	32	33	47
1979	31	26	22	29	33	38	37	48	48
Period $\bar{v}$	30.0	28.6	22.8	28.7	26.5	35.3	31.0	37.4	42.2
1951- $s(v)$	6.3	4.4	4.5	8.4	6.3	6.5	5.5	6.6	6.3
1979 v_{max}	50	39	34	59	43	47	41	52	59
v_{min}	22	23	16	19	14	23	20	27	33
Period $\bar{v}$	28.8	26.9	23.9	31.4	29.6	31.8	27.8	34.9	41.1
1951- $s(v)$	7.8	3.6	4.8	10.1	5.9	6.4	5.1	6.3	8.0
1963 v_{max}	50	36	34	59	43	44	41	48	59
v_{min}	22	23	16	21	23	23	20	27	33
Period $\bar{v}$	31.1	30.2	21.7	26.3	23.5	38.6	34.0	39.7	43.3
1964- $s(v)$	4.4	4.6	4.1	5.8	5.2	4.6	4.2	6.2	4.2
1979 v_{max}	39	39	32	39	33	47	40	52	52
v_{min}	24	23	16	19	14	32	26	32	38

Lander, Wyoming (1950-1979)

YR					Wind Direction				
	N	NE	E	SE	S	SW	W	NW	Max. Winds from all Directions
1950	26	29	17	34	50	71	57	40	71
1951	38	36	57	31	59	60	58	44	60
1952	36	33	22	36	48	50	51	30	51
1953	46	40	17	30	51	62	55	48	62
1954	29	29	18	23	57	60	55	44	60
1955	22	33	30	33	48	73	67	55	73
1956	26	31	30	46	29	53	57	38	57
1957	26	26	30	25	43	78	51	50	78
1958	35	29	24	34	40	66	75	38	75
1959	37	42	24	35	33	57	50	45	57
1960	24	32	18	19	42	61	45	34	61
1961	33	30	20	30	38	57	65	56	65
1962	23	33	15	26	43	52	56	42	56
1963	40	29	21	26	43	56	38	34	56
1964	24	28	14	26	40	73	47	46	73
1965	32	26	33	31	29	56	59	52	59
1966	33	32	34	21	43	66	61	34	66
1967	31	29	20	23	42	73	50	51	73
1968	38	29	20	29	36	43	50	42	50
1969	25	32	16	22	57	57	50	43	57
1970	29	29	16	18	50	60	54	34	60
1971	32	29	16	30	31	61	47	34	61
1972	28	30	18	31	36	80	50	45	80
1973	27	26	16	17	34	45	45	40	45
1974	27	22	22	29	44	70	43	34	70
1975	39	25	21	29	34	47	43	32	47
1976	23	28	32	25	40	45	40	33	45
1977	19	31	18	35	45	50	42	47	50
1978	32	28	23	35	38	46	44	44	46
1979	21	28	24	26	33	61	47	28	61
Period $\bar{v}$	30.0	30.1	22.9	28.5	41.9	59.6	51.7	41.2	60.8
1950- $s(v)$	6.5	4.1	8.6	6.3	8.1	10.2	8.4	7.5	10.0
1979 v_{max}	46	42	57	46	59	80	75	56	80
v_{min}	19	22	14	17	29	43	38	28	45
Period $\bar{v}$	31.0	32.0	23.8	30.3	44.3	61.9	55.1	42.9	63.7
1950- $s(v)$	7.4	4.4	10.6	6.6	8.2	8.5	9.1	7.5	8.3
1964 v_{max}	46	42	57	46	59	78	75	56	78
v_{min}	22	26	14	19	29	50	38	30	51
Period $\bar{v}$	29.1	28.3	21.9	26.7	39.5	57.3	48.3	39.5	58.0
1965- $s(v)$	5.7	2.7	6.3	5.6	7.5	11.4	6.1	7.4	10.9
1979 v_{max}	39	32	34	35	57	80	61	52	80
v_{min}	19	22	16	17	29	43	40	28	45

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4. TITLE AND SUBTITLE

Directional Extreme Wind Speed Data for the Design of Buildings
and Other Structures

5. AUTHOR(S)

Michael J. Changery, Eugene J. Dumitriu-Valcea, Emil Simiu

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10. SUPPLEMENTARY NOTES

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☐ Document describes a computer program; SF-185, FIPS Software Summary, is attached.

11. ABSTRACT *(A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here)*

The purpose of this report is to provide largest yearly fastest-mile wind speed data corresponding to winds blowing from each octant at 37 airport stations in the United States. Four sets of data are presented. The first set consists of largest yearly fastest-mile wind speeds at 24 stations as extracted from original records. The second set consists of largest yearly fastest-mile wind speeds at 13 stations as extracted from Local Climatological Data (LCD) summaries. The third and fourth sets consist of the data from the first and second sets reduced to a height of 10 m above ground. The report also provides information on possible differences between extreme data extracted from original records on the one hand and from LCD summaries on the other hand. Procedures for estimating extreme wind effects that take into account the directional characteristics of the extreme wind climate and of the aerodynamic behavior of the structure are briefly reviewed, and it is noted that additional research on sampling errors in the estimation of extreme wind effects appears to be warranted.

12. KEY WORDS *(Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons)*

aerodynamics; climatology; directionality; reliability; structural engineering; wind engineering; wind speeds.

13. AVAILABILITY ☒ Unlimited ☐ For Official Distribution. Do Not Release to NTIS ☒ Order From Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. ☐ Order From National Technical Information Service (NTIS), Springfield, VA. 22161	14. NO. OF PRINTED PAGES 123
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